

Tilburg University

The psychological dynamics of inertia

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Publication date:
2017

Document Version
Publisher's PDF, also known as Version of record

[Link to publication in Tilburg University Research Portal](#)

Citation for published version (APA):
Krijnen, J. (2017). *The psychological dynamics of inertia*. Ridderprint.

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The Psychological Dynamics of Inertia

Job M. T. Krijnen

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This research is funded by Netspar and the Tilburg Institute for Behavioral
Economics Research

Cover: Tim Krijnen

Printing: Ridderprint BV

The Psychological Dynamics of Inertia

PROEFSCHRIFT

ter verkrijging van de graad van doctor
aan Tilburg University
op gezag van de rector magnificus,
prof. dr. E. H. L. Aarts,

in het openbaar te verdedigen
ten overstaan van een door het college
voor promoties aangewezen commissie
in de aula van de Universiteit
op vrijdag 13 januari 2017 om 14.00 uur

door Job Martinus Theresia Krijnen,
geboren op 20 januari 1988
te Eindhoven

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Chapter 1

Introduction

Many people are not saving enough for retirement. In the United States, around half of households face a significant fall in their purchasing power upon retirement (Benartzi & Thaler, 2013; Kim & Hanna, 2013; Munnell, 2015; Wiener & Doescher, 2008). In recent years, U.S. news outlets have started referring to this as the retirement crisis, primarily because it may lead to a substantial increase in poverty under retirees (Eisenberg, 2016; James & Ghilarducci, 2016; Moeller, 2016; Olen, 2016). Insufficient retirement saving is also a problem outside the United States. Even in the Netherlands, which is one of the highest ranked countries in terms of retirement saving adequacy (Mercer, 2015; OECD, 2015), the most optimistic estimates indicate that approximately 20% of people are currently saving too little to meet their own goals (De Bresser & Knoef, 2015; Knoef et al., 2014; Knoef, Goudswaard, Been, & Caminada, 2015).

Among the many causes for insufficient retirement saving is people's own behavior or, to be more precise, a lack of appropriate action. People ignore important information, maintain unrealistic expectations, or fail to take advantage of attractive opportunities (e.g., Choi, Laibson, & Madrian, 2011; Lusardi & Mitchell, 2011; Munnell & Sundén, 2006; Van Rooij, Lusardi, & Alessie, 2011).

The tendency to remain passive is not unique to the context of retirement saving. *People often do nothing when action is needed.* Think of people not replacing a broken light on their bikes, people not switching to a cheaper energy provider, or people not making regular backups of their computers. In such instances, doing nothing seems dangerous, unnecessarily expensive, or unwise. In short, doing nothing seems irrational. After all, there are obvious benefits to replacing a light, to switching energy providers, and to making regular backups, just as there are obvious benefits to adequate retirement preparation. How can we explain this inaction? Why are people doing nothing when taking action would clearly be better?

One answer immediately comes to mind: When people do nothing, they probably do not care enough about the benefits of taking action. This

explanation has intuitive appeal and is popular among psychologists, economists, managers, politicians, policymakers, and laypeople. When trying to motivate others to take action, people frequently resort to strategies that emphasize or increase importance. A teacher who wants to motivate students starts by explaining the importance of the course's content for the careers of the students. A father who wants his kids to cycle safely tells them repeatedly how important proper lighting on the bike is. A health coach who wants to promote a more active lifestyle starts by explaining how thirty minutes of daily exercise help to improve health and increase life expectancy. Based on similar reasoning, retirement saving policy aims to spur action by increasing the importance of retirement saving through financial incentives and education (Attanasio, Banks, & Wakefield, 2004).

In this dissertation, I argue that this seemingly plausible explanation – people do nothing because they do not care – is insufficient. In fact, I believe that focusing too much on this explanation may obscure a crucial insight: people are passive even when they understand and appreciate the long-term benefits of taking action. People postpone replacing a light even if they understand the importance of traffic safety; People stick with the expensive energy provider even if they realize the long-term financial benefits of switching; People procrastinate making backups even if they repeatedly plan to do so; Finally, people do not prepare for retirement even if they know that retirement saving is one of the more important financial matters.

This dissertation aims to deal with the puzzling observation of inaction even in the face of knowledge about the benefits of action. It does so by investigating *the psychological dynamics of inertia*.

Understanding Inertia

What is inertia? The Merriam-Webster Dictionary defines inertia (n.d.) as a “lack of movement or activity especially when movement or activity is wanted or needed”. The Oxford English Dictionary defines inertia (n.d.) as “inactivity; the disinclination to act or exert oneself”. As synonyms to inertia

(n.d.), Thesaurus.com suggests ‘apathy’, ‘laziness’, ‘paralysis’, ‘passivity’, and ‘sluggishness’. In psychology and economics, inertia refers to the tendency to remain passive, even in the presence of good reasons to become active (e.g., Madrian & Shea, 2001; Van Putten, Zeelenberg, Van Dijk, & Tykocinski, 2013). As such, inertia is a fitting and useful umbrella term covering various forms of persistent inaction.

I am certainly not the first to study people’s tendency to do nothing. In fact, let me illustrate the multitude of ways in which people can do nothing by highlighting some of the work that forms the basis of this dissertation. First, there is inertia in the form of procrastination – the tendency to delay a course of action against one’s own intentions (Harriott & Ferrari, 1996; Pychyl, Lee, Thibodeau, & Blunt, 2000; Steel, 2007). Second, there is inertia in the form of a bias towards choosing the default or status quo option, independent of what that option is (Samuelson & Zeckhauser, 1988; Smith, Goldstein, & Johnson, 2013). Finally, there is inertia in the form of an avoidance of difficult or emotion-laden decisions (Anderson, 2003; Beattie, Baron, Hershey, & Spranca, 1994) and as the deferral of choice between conflicting options (Dhar, 1997; Tversky & Shafir, 1992a).

Obviously, there are differences between what causes people to procrastinate, what causes people to stick with the default or status quo, and what causes people to avoid or defer decisions. Nonetheless, the approach in this dissertation is to consider them all as instances of the same behavioral phenomenon: inertia. This behavioral phenomenon serves as the starting point of my inquiry. The goal is to work my way up towards a more general psychological understanding of inertia. What causes people to do nothing when action is needed?

Inertia in Retirement Saving

As a psychologist, I am interested in inertia across domains. However, inertia is best understood when studied in a specific context. Netspar, the Network for Studies on Pensions, Aging and Retirement, supports and

facilitates research on topics relevant to the retirement system in the Netherlands. The support by Netspar provided an excellent opportunity to connect psychological research on inertia to an intriguing societal issue. Why would people do so little to prepare for retirement, even if action is needed to accumulate sufficient retirement wealth?

Before I turn to a more in-depth discussion of inertia in retirement saving, it seems appropriate to briefly introduce how retirement systems are organized. Although countries differ quite a bit in their retirement systems, there are some similarities as well. A typical retirement system consists of three pillars. The first pillar is a mandatory state pension, providing all residents with a basic income after retirement. The second pillar comprises occupational plans. Participation in these plans is sometimes mandatory, sometimes optional, and sometimes unavailable altogether. In most countries, contributing to occupational plans is financially attractive because of employer contributions and tax advantages. Finally, there is a third pillar, including all individual, optional retirement saving arrangements.

There are two reasons why retirement saving turned out to be a particularly suitable context to study the dynamics of inertia. First, inertia in retirement saving is common. Retirement saving is highly complex, as it requires people to make long-term decisions under changing and uncertain conditions. This complexity causes people to avoid or postpone retirement preparations for as long as possible. In a recent survey, over half of Dutch participants indicated that they should devote more time and effort to their own retirement preparation (Wijzer in Geldzaken, 2014). Over 40% had never taken the time to think about their income and expenditures after retirement, 66% had not looked at their pension overview (i.e., www.mijnpensioenoverzicht.nl), and 71% had not looked at their annual pension statement (i.e., UPO).

Inertia in retirement saving is also consequential, both at the individual and at the societal level. Retirement saving is one of life's most important financial matters, and insufficient preparation may contribute to a

significant fall in income at the age of retirement (Benartzi & Thaler, 2013; Knoef et al., 2014). In some countries, insufficient retirement saving may lead to an increase in the number of retirees living in poverty, which is costly to society as a whole (James & Ghilarducci, 2016). Recently, the Dutch National Institute for Family Finance Information ('Nibud') expressed its concerns about the financial situation of future retirees in the Netherlands (Nibud, 2016; Van der Schors, Siesling, Starink, & Warnaar, 2016).

The consequences of inertia in retirement saving will increase in the years to come. Life expectancy is rising, the population is aging, and heterogeneity in preferences, career paths, and lifestyles is increasing (Bodie & Prast, 2012; Zaidi, 2012). These changes in the composition of the population call for adjustments in the design of retirement systems, which generally take the form of more flexibility, more freedom of choice, and more individual, tailor-made solutions (Bovenberg & Van Ewijk, 2011; Hedesström, Svedsäter, & Gärling, 2007). With an increasing individualization of retirement saving comes a shift in responsibility from governments, employers, and financial institutions towards the individual (Choi, Laibson, Madrian, & Metrick, 2002; Engström & Westerberg, 2003; Poterba, Rauh, Venti, & Wise, 2007). People are becoming more responsible for their own retirement saving, which makes inertia more consequential.

Overcoming Inertia

A better understanding of inertia can eventually help to overcome (the consequences of) inertia. As of now, many policies, interventions, and motivational strategies build on the assumption that increasing importance promotes action. In the domain of retirement saving, this is done through the provision of long-term financial incentives and financial education. However, these interventions have little effect on behavior (Chetty, Friedman, Leth-Peterson, Nielsen, & Olsen, 2014; Fernandes, Lynch Jr., & Netemeyer, 2014). I argue that this is because the underlying reasoning is flawed. Most people do care and worry about retirement saving and increasing importance does not directly affect people's actions and choices. If we were to better

understand the psychological mechanisms that cause inertia, we would be able to design policy and communicate information in such a way that it helps people to better prepare for retirement.

The implications of an improved understanding of inertia go beyond retirement saving. In the financial domain, understanding inertia could help to overcome inertia in switching between insurance plans (Handel, 2013; Marzilli Ericson, 2014), in paying off credit card debt (Shui & Ausubel, 2005; Sunstein, 2006), and in refinancing housing mortgage (Anderson, Campbell, Meisner Nielsen, & Ramadorai, 2015). In the health domain, understanding inertia could help to overcome inertia in physical exercise (Charness & Gneezy, 2009; DellaVigna & Malmendier, 2006), medication adherence (Keller, Harlam, Loewenstein, & Volpp, 2011), and food intake (Downs, Loewenstein, & Wisdom, 2009). Finally, understanding inertia could help to overcome inertia in the form of harmful procrastination at work and school (Chun Chu & Choi, 2005; Steel & Ferrari, 2013; Van Eerde, 2003).

To overcome inertia in retirement saving and other domains, it is imperative to understand the other reasons that people may have for doing nothing. Inertia is not always the result of people not caring. I present empirical projects that support this claim as well as projects that examine other explanations for inertia. Additionally, I distill insights from these empirical projects, as well as from the broader domain of behavioral research on action and inertia, to be applied to retirement system design, retirement communication, and financial education.

A Reader's Guide

This dissertation forwards three main ideas. First, as an explanation for inertia in retirement saving, 'people do not care' is inadequate. Second, other factors cause retirement saving inertia: information about missed opportunities and cost-of-waiting underestimation. Third, an updated understanding of inertia has implications for retirement saving policies. These topics are discussed throughout the following chapters. Chapter 2 is a review

chapter. Chapters 3-6 are empirical chapters. Chapter 7 is a general discussion. I use “we” in Chapters 2-6 because these are written in collaboration with my coauthors. On the title page of each new chapter I mention the title of the original manuscript, names of the coauthors, and publication status.

Note that Chapters 2-6 are written as separate articles that can be read individually and in any order. As a result, there is some overlap between these chapters. Also, I can imagine that the reader wants to read only the parts that interest her or him. Therefore, I recommend the following:

- “I want to know more about inertia in retirement saving and about the implications for retirement saving policy.” Read Chapter 2.
- “I am interested in the psychological mechanism underlying procrastination in the financial domain.” Read Chapter 3.
- “I am interested in the contextual factors in decision making that lead to inertia.” Read Chapters 4, 5, and 6.
- “I want to know how the research in this dissertation contributes to understanding and overcoming inertia across domains.” Read Chapter 7.
- “I want to read as little as possible about retirement saving.” Skip Chapters 2-6 and read Chapter 7.
- “I am reading this dissertation as an excuse to postpone other, more important things such as preparing for retirement or fixing the light on my bike.” Put down this dissertation and do the important things first. It is easier than you think and you will feel better afterwards.

Overview of the Chapters

Chapter 2: Understanding and Overcoming Inertia in Retirement Saving

This chapter presents a more detailed view of inertia and its relevance for the current Dutch retirement situation. It addresses two questions. First, what reasons are there for inertia in retirement saving? Second, how can our understanding of these reasons contribute to current and future developments in the Dutch retirement system? An extensive analysis of the reasons for action and the reasons for inertia provides a crucial insight: whereas many people know why they should be saving for retirement, they do not know *why now and how*. A final section makes recommendations for Dutch retirement practice, structured around two questions: (1) ‘Why should I take action right now?’, and (2) ‘How should I take action?’

Chapter 3: Intention and Action in Retirement Preparation

This chapter examines whether perceptions of importance and difficulty predict procrastination in retirement preparation. Data from two initial surveys indicate that difficulty is a much stronger predictor of procrastination than importance. In a third survey, questions were introduced that could distinguish between people who have the intention to prepare for retirement from people who take action. Analyses show that importance predicts intention but not action. Difficulty predicts both intention and action. These findings may explain why policies that simplify retirement preparation (e.g., automatic enrollment) have been more successful than policies that emphasize the importance of retirement saving (e.g., tax advantages).

Chapter 4: Decision Importance as a Cue for Deferral

Whereas Chapter 3 indicates that making retirement saving important does little to promote action, Chapter 4 demonstrates that this strategy may even backfire by causing deferral of decisions. A series of seven experiments found that people defer important decisions more than unimportant

decisions. This effect is independent of choice set composition and choice conflict, and occurs even when deferral does not provide more flexibility, when deferral has potential disadvantages, and when deferral has no material benefits and is financially costly. These results suggest that people use decision importance as a cue for deferral.

Chapter 5: Inaction Inertia in Retirement Saving

Chapter 5 examines whether and when having missed an opportunity to save for retirement decreases people's likelihood to act on a subsequent opportunity. Five experiments show that likelihood to enroll in a retirement plan decreased after having missed a much better opportunity. Moreover, the mere passing of time can cause this inaction inertia effect. Participants with a longer history of inaction were less likely to start saving. This implies that people may fall prey to a cycle of retirement saving inertia. Luckily, the results also provide suggestions for how to counter inertia in retirement saving. Inaction inertia did not occur when opportunities were described as future outcomes.

Chapter 6: Cost-of-waiting Underestimation in Retirement Saving

Chapter 6 examines cost-of-waiting underestimation as a possible explanation retirement saving inertia. Five studies suggest that people underestimate the cost of waiting in retirement saving, that this underestimation plays a role in retirement saving inertia, and that providing exact cost-of-waiting information decreases the likelihood of waiting.

Chapter 7: General Discussion

In Chapter 7, I first provide a recap of the findings from Chapters 2-6. Then, I discuss the implications of this dissertation, both for understanding the psychological dynamics of inertia, and for how to overcome inertia. I extend the findings from previous chapters by distinguishing three broad mechanisms underlying inertia: (1) inertia as a conflict between present and future, (2) inertia as a strategy to avoid mistakes, and (3) inertia as a

misunderstanding of dynamic environments. I close by discussing how focusing on simplification, providing immediate incentives, and providing useful information can help to overcome inertia.

Chapter 2

**Understanding and Overcoming Inertia
in Retirement Saving**

This chapter is based on: Krijnen, J. M. T., Zeelenberg, M., & Breugelmans, S. M. (2016d). *Overcoming inertia in retirement saving: Why now and how?* Netspar Survey Paper 47.

Saving for retirement is one of the most important financial matters that people face during their working lives. Dealing with this issue can be difficult. The Dutch, on average, accumulate sufficient retirement wealth, but there are large differences between people, and some groups are at high risk of not saving enough (AFM, 2010a; De Bresser & Knoef, 2015; Knoef, Goudswaard, Been, & Caminada, 2015). According to recent estimates, around 20% of the Dutch population will not meet their own retirement goals (De Bresser & Knoef, 2015; Knoef et al., 2014; Knoef et al., 2015). The self-employed – a fast growing group in the Netherlands – as well as divorced and high-income households are particularly likely to retire with fewer savings than they expect (Knoef et al., 2014, 2015). Why are so many people not saving enough to live comfortably during retirement?

Understanding Insufficient Retirement Saving

One possible explanation is that people deem retirement saving not important enough. Those who find income during retirement unimportant, including people who expect not to live long after retirement and people who plan not to retire at all, will be reluctant to save. In a recent survey, representatives of Dutch retirement organizations were asked to explain why they could not attain the goals that the industry has set for itself (Nell & Lentz, 2013). The most frequent explanation was that people simply do not care enough about retirement.

This explanation probably holds true for some people, which is why raising awareness about the importance of adequate retirement saving can be an effective strategy to motivate people. To examine for how many people such a strategy is relevant, we added two questions to an online questionnaire administered by Nibud. A representative sample of 1,537 Dutch participants (50.9% female; $M_{\text{age}} = 42.83$, $SD_{\text{age}} = 13.95$) indicated to what extent they agreed with the statement “having enough retirement savings is important for me”. On a 7-point scale ranging from “I fully disagree” to “I fully agree”, 78% answered “I agree to some extent”, “I agree”, or “I fully agree” ($M = 5.49$, $SD = 1.57$). Moreover, when asked whether they would like to have sufficient

retirement savings, 96% answered “yes”. In light of such numbers, it seems implausible that most people save too little for retirement because they deem it unimportant.

A related explanation for the problem of insufficient retirement saving is that people have other financial priorities that are more important at present, such as paying off debt or a mortgage loan. Again, although such considerations undoubtedly play a role in determining their saving decisions, we also know that retirement saving is one of top financial priorities for most people. In another online survey by Nibud (2015), a representative sample of 1,115 Dutch participants was confronted with 14 common financial goals and asked to what extent these were important to them. A majority indicated that retirement saving is an important goal, making it the second most important goal on the list (see Table 1). Wijzer in Geldzaken (2014) reported a related finding: in their survey, over half of Dutch participants indicated that they *should* devote more time and effort to their own retirement preparation than they actually did. In the United States, the results of an annual poll showed that “not having enough money for retirement” is the number one financial worry (Gallup, 2015). Sixty percent of Americans is “very” or “moderately” worried about this. Taking all these findings together, it seems clear that having money for retirement is an important and desirable goal that most people care for and worry about.

Table 1

Financial goal	% Important	% Not important	% NA
Having money to pay for large or unexpected purchases.	78	14	7
Having enough money to live comfortably after retirement.	67	20	13
Being able to pay for health costs later in life.	59	28	14
Covering liabilities, such as unemployment, disability, and death.	45	28	27
Paying off a mortgage.	36	22	42
Children's education.	34	13	53
Repaying loans other than mortgage.	33	15	52
Being able to retire earlier.	27	40	33
Leaving an inheritance for children.	20	35	45
Rebuilding the house.	20	37	44
Helping children with buying a house.	17	32	51
Buying a new house.	17	36	47
Unpaid leave/sabbatical.	10	42	48
Buying a second house.	5	37	58

It is possible that a minority of people are not motivated to save for retirement because they find it unimportant, because they think they already have enough money, because they do not expect to live long after retirement, or because they have other financial priorities at present. Emphasizing or increasing the importance of retirement saving can be an effective strategy to motivate those people. This possibility seems to underlie two broad categories of interventions. First, governments and employers aim to make retirement saving financially attractive by providing financial subsidies, such as tax advantages and employer matching. Second, the goal of financial education efforts is to further emphasize the long-term importance of sound financial behavior in general, and retirement saving in particular.

The crucial question is how much one can expect from such interventions, as most people are aware of the importance of retirement saving. Moreover, for the relatively small percentage of people who are not yet aware of the importance of retirement saving (fewer than one in four according to the surveys discussed here), raising awareness or increasing motivation may not be sufficient to change behavior. A recent study found that financial subsidies have almost no effect on savings rates (Chetty, Friedman, Leth-Peterson, Nielsen, & Olsen, 2014), and an extensive meta-analysis concluded that, overall, financial education efforts have very little effect on the financial behavior studied, explaining only 0.1% of the variance (Fernandes, Lynch Jr., & Netemeyer, 2014).

To summarize, many people are not saving enough to meet their own goals or expectations after retirement. Attempts to solve this problem often rely on a seemingly plausible explanation: people find saving for retirement not important enough. Interventions based on this explanation – the provision of financial incentives and financial education – may prove effective for some people, but show very little overall effect on behavior. We believe that, to come to other, more (cost-)effective interventions, it is worthwhile to look beyond the most obvious explanation. In other words, how can it be that many people in the Netherlands, even though they consider retirement saving a top

financial priority at present, still do not save enough to live comfortably during retirement?

Inertia Based on Reasons

This article aims to answer this question by investigating the psychology of inertia and its relevance for retirement saving in the Netherlands. The Merriam-Webster dictionary defines inertia as a “lack of movement or activity especially when movement or activity is wanted or needed”. In psychology and economics, inertia is used to describe the tendency to remain inactive, even in the presence of good reasons to become active (e.g., Madrian & Shea, 2001; Van Putten, Zeelenberg, & Van Dijk, 2013). We believe inertia is a fitting and useful label for people’s lack of action in the domain of retirement saving. Most people are aware of the importance of retirement wealth, they consider retirement saving to be a financial priority, and they recognize that there are good financial reasons to save (or to save more) for retirement. Nonetheless, they remain inert.

In the remainder of this article, we address two questions. First, what other reasons, besides not finding retirement saving important, can explain inertia in retirement saving? Second, how can our understanding of these reasons contribute to current and future developments in the Dutch retirement system? To answer these questions, we provide an analysis of (1) *reasons for action* and (2) *reasons for inertia*.

The reasons for action are primarily financial: starting to save early leads to more retirement wealth. In spite of these financial reasons for action, many people remain inert. We discuss three possible explanations: (1) people are ignorant about the financial costs of waiting, (2) people neglect the financial costs of waiting, and (3) people underestimate the financial costs of waiting.

The reasons for inertia are mostly psychological: people remain inert because inertia has psychological advantages compared to taking action. Reasons for inertia include an increase in the expected accuracy of a decision,

avoidance of potential regret, an increase in confidence, retention of flexibility, present-biased preferences, and undue optimism about the future.

A categorization of reasons for action and reasons for inertia does not imply that inertia always follows from a deliberated analysis of quantifiable costs and benefits. It is true that the way people make decisions sometimes closely resembles how formal models would describe the process. People evaluate the costs and benefits of an alternative, weigh the different evaluations, and choose the alternative with the highest overall evaluation. However, on many occasions people follow a different, less calculated path; they assess reasons for and/or against one alternative or the other, and make a decision based on reasons that they can justify to themselves and to others (Shafir, Simonson, & Tversky, 1993). Both models of human decision-making – formal models and ‘reason-based choice’ models – can be of value in explaining inertia in retirement saving. Also, all reasons for action and inertia that we discuss in this article can be used as input in a formal decision-making process, as costs or benefits, and as compelling reasons in a reason-based decision-making process.

It is also worth mentioning that the current analysis of reasons for action and for inertia is a simplification. The problem of insufficient retirement saving is extremely complex and cannot be ‘solved’ by a single intervention based on our understanding of a single psychological process. But simplification serves a purpose. It helps focus on what is presumably an important source of insufficient retirement saving, namely inertia. Furthermore, simplification helps us to use this source – inertia – as a starting point for possible explanations and interventions. A near infinite set of financial and psychological reasons may motivate both action and inertia in retirement saving, and our analysis is in no regard exhaustive. However, it does provide insight into the most promising ways of dealing with the problem.

Inertia at Various Stages of Retirement Saving

At this point, we wish to make clear that, when talking about retirement saving, we actually have a broad process in mind and that we focus on more than just the decision to save or not to save. For clarity and brevity, we use the term ‘retirement saving’ as a label for a broad range of actions related to retirement preparation. More specifically, we think that inadequate retirement saving can result from the difficulties that people face at, at least, three different stages: understanding, planning, and saving. This article connects the available evidence about inertia to each of these stages of retirement saving. Table 2 provides an overview of the role of inertia at each of these stages, the possible implications, and some relevant references.

With a better understanding of the dynamics of inertia, we would ideally be able to help people at all three stages. This is valuable because people who wait and postpone retirement preparation are left with little or no time to adapt to their updated, more realistic expectations about their replacement rate, or to adjust their savings rate and strategy in order to meet expectations. On the other hand, those who start preparing for retirement early are more likely to end up with a satisfying level of retirement income (Munnell, Golub-Sass, & Webb, 2011).

Table 2

At the...	Inertia can explain why...	With implications for...	References
...understanding stage.	...people are ignorant about financial matters in general and about retirement saving specifically.	...how to make people more likely to look for, attend to, and use financial information.	Lusardi & Mitchell, 2007, 2011; Van Rooij, Lusardi, & Alessie, 2011
...planning stage.	... people do not know how much they are saving, how much they need, and how they could possibly bridge the gap.	... how to motivate people to look up information about their current financial situation.	AFM, 2010a; Alessie, Van Rooij, & Lusardi, 2011; De Bresser & Knoef, 2015; Prast & Van Soest, 2014; Wijzer in Geldzaken, 2012
...saving stage.	... people fail to adjust their saving rate or their saving strategy, in spite of being knowledgeable and fully informed.	...how to motivate people to make decisions that actually increase their retirement savings.	Benartzi & Thaler, 2007; Choi, Laibson, Madrian, & Metrick, 2002; Fernandes et al., 2014

Inertia in the Dutch Retirement System

The Dutch retirement system is widely regarded as one of the best in the world, in terms of both adequacy and sustainability (Allianz, 2014, 2015; Mercer, 2015; OECD, 2015). The state pension (AOW) provides all Dutch residents with a basic income after retirement, replacing income at a flat rate of 50% of the minimum wage for couples or of 70% of the minimum wage for singles (Knoef et al., 2014; OECD, 2015). An extensive second pillar consists of employer-sponsored occupational plans, which cover around 90% of employees (Knoef et al., 2014). These agreements are relatively generous, with projected gross replacement rates between 85% and 95% of pre-retirement earnings (OECD, 2015).

The Dutch retirement system is also relatively paternalistic. The majority of employees who work in industries with collective agreements are automatically enrolled in an occupational pension plan that provides little freedom of choice. It is normally not possible for individuals to opt out, to switch plans, to increase or decrease their savings rate, or to manage their investment strategy. There are several noteworthy exceptions to this paternalistic rule, both in the accumulation and the payout phase. Table 3 provides an overview of the available freedom of choice per element of the Dutch retirement system.

Table 3

Element	Freedom of choice - current status
First pillar: state pension	Mandatory
<p>Second pillar: occupational retirement plans for employees under collective agreement</p> <p style="padding-left: 40px;">Enrollment</p> <p style="padding-left: 40px;">Contribution rate</p> <p style="padding-left: 40px;">Investment strategy</p> <p style="padding-left: 40px;">Retirement age</p> <p style="padding-left: 40px;">Payout phase</p>	<p>Automatic and mandatory for most, optional for some</p> <p>Automatic for most. Optional increased contribution for high-income earners.</p> <p>Automatic for most</p> <p>Statutory retirement age with some flexibility</p> <p>Options for variable payments (higher first)</p>
Second pillar: occupational retirement plans for the self-employed and for employees not under collective agreement	Optional for most
Third pillar: individual retirement saving	Optional

Because the first and second pillars of the Dutch retirement system are relatively adequate, sustainable, and mostly mandatory, the problem of inertia may at first seem irrelevant for the Dutch situation. However, we strongly believe that this is not the case. In the Netherlands, inertia at all stages of retirement saving has become increasingly relevant and consequential, and might become even more so in the near future. We highlight here three key developments to support this statement.

First, the recent financial downturn and the aging of the population are causing a decrease in the generosity of Dutch retirement arrangements (Commissie Goudswaard, 2010). A recent study points out that the gross replacement rates as published by Allianz, Mercer, and the OECD do not tell the whole story (Knoef et al., 2014). In fact, there is large variance in replacement rates, and an estimated 31% of Dutch households are currently facing a replacement rate below 70% of their current income. As a consequence, the expectations of many people about their future retirement income are no longer in line with financial reality (Knoef et al., 2015). People think that they save enough to maintain their current level of consumption, while this is not always the case. For instance, people in certain income groups are particularly likely to either save too little or to have overly optimistic expectations. Inertia plays a role in this problem and in the possible solutions to this. People are unlikely to look up information online, to talk to financial advisors, to read letters or brochures, or to think about their financial future. In other words, people are inert when it comes to the understanding stage.

Second, partly because of the large variance in expected replacement rates, there is an increasing call for a more individualized retirement system (Knoef et al., 2015; SER, 2015; Van Ewijk, Lever, Bonenkamp, & Mehlkopf, 2014). In the future, the Dutch are likely to get more freedom of choice in their retirement saving (Lever, Ponds, Cox, & García Huitrón, 2015). Ideally, this should lead to well-suited saving strategies and better outcomes. In reality, however, we expect many people to remain inert, potentially leading to worse results depending on the default (Madrian & Shea, 2001).

Third, inertia has major consequences for the growing number of self-employed workers, who are fully responsible for their own retirement saving. Already in 2010, 10-20% of the Dutch workforce was self-employed and therefore not eligible for an industry-wide collective pension arrangement (Commissie Goudswaard, 2010). As this group grows, the consequences of inertia in retirement saving are expected to grow as well. Initial attempts to provide retirement saving products aimed at the self-employed show little success (Trappenburg, 2015). In helping the self-employed to save more for retirement, the crucial question is whether retirement saving products should be opt-in (as they currently are), opt-out, or mandatory (AFM, 2015a; De Jong, 2009). Additionally, if a plan is implemented, what is the most effective way to communicate this to the relevant group?

Understanding the dynamics of inertia can thus be valuable for the major challenges to the Dutch retirement system. Why are people slow to adjust their expectations to changes in retirement arrangements? What would be the consequences of increased freedom of choice? How can we help the self-employed to build sufficient retirement wealth? These questions are relevant for what people know about and for how they deal with their first, second, and third pillar retirement savings. For instance, an understanding of inertia leads to recommendations on how to motivate people to visit websites with personalized information about retirement (e.g. www.mijnpensioenoverzicht.nl). It leads to recommendations on whether, where, and how to introduce freedom of choice in mandatory occupational retirement plans. It also leads to recommendations on how to implement occupational retirement plans for the self-employed.

However, the effects of inertia go beyond the traditional first, second, and third pillars of retirement saving. People can build retirement wealth in many different ways. Decisions to work longer and retire later, to pay off a mortgage loan, to sell or buy a house, or to invest in the stock market all determine the level of retirement wealth. These decisions are affected as well by inertia in earlier stages of retirement saving. If people fail to make any effort to understand financial concepts or to plan for retirement, they may likewise

forego decisions on whether to work longer and retire later, to pay of a mortgage loan, to sell or buy a house, or to invest in the stock market. Understanding inertia helps us to understand the viability of policy implementations and communication strategies. By focusing on inertia, its possible causes, and its possible solutions, this article follows up on to the explicit call of the AFM (2015b, p. 7) to “bridge psychological barriers and activate consumers.”

In summary, the premise of this article is that inertia, same as actions, has both pros and cons. The aim is to better understand the reasons for action and inertia, through empirical evidence from both psychology and behavioral economics. In the remainder of this article, we first analyze the reasons for action. We examine three explanations why people seem to be relatively irresponsive to financial reasons for action: ignorance, neglect, and underestimation. Then, we turn to the reasons for inertia. People may remain inert for a variety of reasons: accuracy, regret avoidance, confidence, flexibility, present-biased preferences, and undue optimism about the future.

Based on the evidence for each of these reasons, we draw implications for how choice environment, information provision, and policy in the Dutch retirement system might be adjusted to how people actually behave. In a final section, we structure these implications by taking the perspective of the individual. Why are people – real human beings instead of rational agents or ‘econs’ (Thaler, 2015) – typically inert in retirement saving, and what can governments, retirement funds, and employers do to help them?

Reasons for Action

In retirement saving, the reasons for action are primarily financial. Retirement saving is dynamic in nature, with the timing of actions and choices affecting the outcomes of these actions and choices. Enrollment in a retirement plan at age 25 leads to a different outcome than enrollment in the same plan at age 45. In general, savings grow over time through accumulation

of interest and the return on investments. Thus, starting to save early in life leads to more retirement wealth than starting to save late in life.

Why are so many people inactive when inertia is financially costly in the long run? In this section, we discuss three possible explanations. The first explanation is *ignorance*: people simply do not know that inertia is financially costly. The second is *neglect*: people know that inertia is financially costly, but they do not consider these costs when making a decision. A third explanation is *underestimation*: people know that inertia is financially costly, and they do consider these costs when making a decision, but they underestimate how high the costs actually are.

Financial Cost: Ignorance

People may delay retirement saving simply because they do not know that delay has long-term financial costs. It is possible that they confuse the dynamic nature of retirement saving with a static situation, where the timing of an action has no impact on the outcome of the action.

Research on financial literacy shows that in the Netherlands, like in the United States, a considerable percentage of people misunderstand basic financial concepts such as compound interest, inflation, and risk diversification (Lusardi & Mitchell, 2009; Van Rooij et al., 2011; Van Rooij, Lusardi, & Alessie, 2012). One concept often incorporated in this set of financial literacy questions is the ‘time value of money’, measured by the question: “Assume a friend inherits €10,000 today and his sibling inherits €10,000 three years from now. Who is richer because of the inheritance? (a) my friend; (b) his sibling; (c) they are equally rich; (d) do not know” (e.g., Van Rooij et al., 2011, p. 606). People with a background in economics might consider it obvious that the inheritance will grow over time. However, when this question was asked to representative samples of Dutch and American adults, one out of five participants answered it incorrectly (Lusardi & Mitchell, 2009; Van Rooij et al., 2011; Van Rooij et al., 2012). In other words, one out

of five participants mistakenly assume that it makes no difference whether one invests money today or next year.

People who are unaware of the financial cost of inertia will be more likely to delay retirement saving. Think of a self-employed person who recently started her own business. She may believe that retirement saving is important someday, but she may also think that it does not matter all that much whether she invests time, money, and effort in retirement saving this year, next year, or the year after. Because of this ignorance about the impact of time on financial outcome, she may postpone taking action until her business makes profit.

A basic understanding of financial concepts, including the time value of money, can help people make better financial decisions. However, as mentioned before, simply explaining these concepts to people does little to affect their behavior at a later point in time. More can be expected from what are called just-in-time education attempts (Fernandes et al., 2014; Mandell, 2006). Explaining to people the important role of time in financial decisions has most effect if there is an immediate opportunity to act on this information.

Financial Cost: Neglect

Inertia is common, but only a minority of people are ignorant about the time value of money. Hence, a lack of understanding may explain the inertia of some, but it does not tell the whole story. A first alternative explanation for retirement saving inertia is people's neglect of the long-term financial cost of inertia. This explanation differs from ignorance because it assumes that people *know* how time affects their outcomes, but that they do not consider it at the moment when they make their decisions.

From previous research, we know that people seldom spontaneously consider all normatively relevant factors when making a decision. One example is their tendency to neglect the opportunity costs of money (Frederick, Novemsky, Wang, Dhar, & Nowlis, 2009; Jones, Frisch, Yurak, & Kim, 1998; Spiller, 2011). When contemplating whether to buy a €25 book, the rational decision-maker should ask himself or herself 'what is the next best

use of this €25?’ (e.g., Larrick, Morgan, & Nisbett, 1990). People should spontaneously think about ‘outside options’ (Spiller, 2011), including options that are not physically present or that are not explicitly mentioned. People should spend money on something only if none of the alternative uses of that money is valued more than the ‘focal option’.

However, this is not what people actually do when making decisions. Whereas people know that, for example, money spent on a car cannot be spent on something else, they do not always consider such opportunity costs (Frederick et al., 2009; Spiller, 2011). Jones et al. (1998) asked participants to describe five decisions that they had made. Participants indicated whether each decision was an opportunity (‘should I buy a new car or not?’) or a choice between options (‘should I buy a new car, or should I book a trip to New York instead?’). Of all decisions described by participants, 63% concerned whether or not to pursue an opportunity. This illustrates that people often consider options in isolation, without directly comparing these against alternative options.

Studies by Frederick et al. (2009) showed that making opportunity costs salient affects people’s choices. Participants were less willing to purchase a \$14.99 DVD when the “not buy” option was framed as “keep the \$14.99 for other purchases”. Jones et al. (1998) also found that people’s decisions can be changed by prompting them to come up with alternative uses of their money. Thus, merely reminding people of the existence of outside options already affected their decisions.

It has been suggested that such interventions should not affect the financially poor, because opportunity costs are already highly relevant for them at all times (Thaler, 2015, p. 58; Frederick et al., 2009). In other words, a poor person should always consider opportunity costs. However, recent studies provide evidence against this suggestion. The neglect of opportunity cost is robust and seemingly independent of wealth (Plantinga, Krijnen, Breugelmans, & Zeelenberg, 2016). Apparently, most people neglect financial opportunity costs, regardless of whether their financial resources are scarce or abundant.

Similar to the neglect of opportunity costs, a person may also neglect other aspects that are relevant to a decision but not explicitly mentioned. Examples are the neglect of energy efficiency when buying a home appliance or a car (Allcott, 2011; Allcott & Wozny, 2014; Sallee, 2013). Most people know that energy efficiency is a relevant aspect, and yet, when not explicitly mentioned, many fail to consider it during their decisions to buy or not buy. In retirement saving, the financial costs of inertia are not salient, easily causing them to be neglected. Many people who know that waiting to save means missing out on interest and possible returns may nonetheless fail to spontaneously consider these costs at the appropriate moment.

Reminding people of neglected aspects of a decision has proven to be effective in other domains. Many countries now require prominent energy labels for both home appliances and cars. In a recent field experiment conducted by the U.K. Behavioural Insights Team, sending patients a text message reminder decreased the number of missed hospital appointments by almost 25% (Hallsworth et al., 2015). It was most effective if the message included the financial cost for the hospital of a missed appointment. Timely reminders may prove to be effective in the domain of retirement saving as well. At times when people typically make (or postpone) financial decisions, they could be reminded that even a short delay affects their future outcomes.

Another possibility is having people actively choose between now and later. Research has shown that people spontaneously think about many decisions as opportunities, with a single option to be accepted or rejected (Jones et al., 1998). A subtle change in the framing of a decision or action, from an opportunity frame (“would you enroll in a retirement saving plan?”) to a choice frame (“would you enroll in a retirement saving plan now or next year?”), can automatically shift a person’s attention towards aspects that differ between the two options. In this example, a person’s attention would shift from reasons for or against enrolling to differences between the two options and their consequences (enrolling now or enrolling later).

To summarize, people who know about the financial costs of inertia may still neglect these costs when making decisions. We drew a comparison between the neglect of the costs of waiting and the neglect of other non-salient aspects of a decision, such as the opportunity costs and the energy efficiency of home appliances and cars. Making the neglected costs of inertia visible at the right time, either through reminders or active choice framing, can affect people's choices.

Financial Cost: Underestimation

Even if a person realizes that postponing retirement saving costs money, and even if such person considers this cost of waiting when making decisions, it is still possible that he or she underestimates how high the cost actually is. Putting money aside early in life is effective because of compound interest (or compound returns on investment). However, research has shown that people have problems estimating or calculating this effect (Almenberg & Gerdes, 2012; Eisenstein & Hoch, 2007; McKenzie & Liersch, 2011). Many people confuse compound interest with simple interest, or they use the simple interest rate as an anchor for their estimate and then insufficiently adjust this estimate upward (Eisenstein & Hoch, 2007). Take the following question: "You have an account holding €10,000, with a fixed annual (compounding) interest of 4%. How much money would be on the account after 40 years?" Those people who confuse compound interest with simple interest calculate the interest after 1 year and multiply this by the number of years ($€400 * 40 = €16,000$). From this calculation, they would conclude that the account holds €26,000 after 40 years. Other people use the outcome of the simple interest calculation as an anchor and adjust upwards. They would conclude that the account holds, for example, €30,000. In reality, both answers are extreme underestimations. After 40 years of compounding interest, the account will hold over €48,000. Thus, because of their misunderstanding, people underestimate the growth of savings. Underestimation is greatest over longer timespans and with higher interest rates, causing people to particularly underappreciate the financial benefits of saving for the distant future (Goda, Manchester, & Sojourner, 2014).

If people underestimate the benefits of saving, they will also underestimate the cost of waiting. McKenzie and Liersch (2011) found that most people in their study underestimated the cost of a 20-year delay, both in a high and a low interest situation. Intriguingly, estimates did not differ between participants with high and low financial knowledge, nor between people with and without an understanding of compound interest. People who understand what compound interest is still fail to account for the effect of compound interest on savings growth and the cost of waiting. In a different study, people were inaccurate in estimating the cost of a one-year delay of a long-term investment (Krijnen, Breugelmans, & Zeelenberg, 2016a). Most participants (71.5%) underestimated the cost of waiting one year by more than one third.

Based on these findings, it seems plausible that people wait to save for retirement because they think waiting is cheap. If this is the case, explaining to people the power of compound interest may help speed up retirement saving. Eisenstein and Hoch (2007) tested this hypothesis. In their study, they taught participants the Rule of 72, which gives a relatively accurate approximation of the number of years it takes for an amount of money to double, given the interest rate¹. A short training procedure improved people's estimates of the effect of interest compounding.

In daily life, people may find it difficult to apply the Rule of 72. First, dividing 72 by the interest rate is not a simple task for most. In addition, the outcome of this calculation only tells something about the time it takes for an investment to double, whereas in many situations, people want to know how much money they will have after a certain number of years. Using the Rule of 72 to answer this question is less straightforward.

¹ The Rule of 72 is a way to estimate the number of years (y) it takes for an amount of money to double, given the interest rate (i): $y = 72 / i$. So if €1,000 is deposited into a savings account with a fixed compound interest rate of 3%, it takes $(72/3) = 24$ years for the initial €1,000 to grow to €2,000 through compound interest.

Goda et al. (2014) examined how sending out various information booklets affected people's retirement saving decisions. A person's likelihood to change his or her retirement saving contribution was significantly higher if the booklet included a graph showing the projected effect of additional contributions on either total retirement wealth (34% higher) or on annual retirement income (29% higher), compared with a control condition where the booklet contained no such graph. Apparently, explaining the power of compound interest through visualization can reduce a person's inclination to postpone saving.

However, as with teaching people the Rule of 72, this intervention may again not be the most efficient or most effective way to counter inertia. As we discussed before, a person who knows about the effect of compound interest and the cost of inertia will not necessarily consider this when making decisions. To make consideration of the cost of inertia more likely, we need simple, brief, and timely interventions. Therefore, instead of educating people about compound interest and savings growth, simply reminding them of the actual, probably higher-than-expected financial cost of inertia may be a better way to diminish the likelihood of inertia.

In a series of experiments, we found initial support for the viability of such an intervention (Krijnen et al., 2016a). We asked participants whether they would invest a windfall gain in their retirement savings account right away, or whether they would wait one more year. All participants read about the benefits of saving and could thus calculate the cost of waiting. However, fewer participants preferred to wait if we explicitly mentioned the cost of waiting (e.g., "because of the compounded interest, waiting one year would accumulate to a loss of \$7,800 at retirement age") than if we did not mention this cost. Apparently, explicitly mentioning the cost of waiting affects people's decisions, indicating that they tend to neglect or underestimate the financial cost of waiting. Moreover, these findings suggest that a simple single-sentence intervention at the right time can decrease the likelihood of inertia. Future research should investigate whether such an intervention would affect downstream financial behavior.

Inertia in retirement saving is financially costly. Nonetheless, many people take no action. So far, we have outlined three explanations for why people do so. People may be inert because they misunderstand, neglect, or underestimate the financial reasons for action. Simple interventions aimed at making the financial cost of inertia clear may decrease the likelihood of delay. However, there is another side to this story, which we discuss in the following section.

Reasons for Inertia

Inertia may not only be the result of the absence of reasons for action, but also of the presence of reasons for inertia. Put differently, a person may have good reasons for doing nothing. In this section, we discuss six factors that can make inertia attractive: accuracy, regret avoidance, confidence, flexibility, present-biased preferences, and undue optimism.

Accuracy

When people make decisions, taking more time generally leads to better outcomes. In other words, people make a trade-off between their time investment ('speed') and choosing the best possible option available ('accuracy'). According to the speed-accuracy framework of decision-making, people have access to a spectrum of decision strategies, ranging from fast-inaccurate strategies to slow-accurate strategies (Beach & Mitchell, 1978; Payne, Bettman, & Johnson, 1993). This framework provides two insights that are relevant for the problem of retirement saving inertia. First, people base their selection of a decision strategy on the characteristics of the decision problem and environment (McAllister, Mitchell, & Beach, 1979; Payne, 1982; Payne, Bettman, & Johnson, 1988). For example, people select more analytic, effortful, and time-consuming decision strategies when the decision problem is important or irreversible (McAllister et al., 1979). Important or irreversible decisions require greater scrutiny, because greater scrutiny is likely to lead to greater accuracy.

A second insight from the speed-accuracy framework is that, instead of trading off actual speed against actual accuracy, people are more likely to trade off anticipated speed against anticipated accuracy (Fennema & Kleinmuntz, 1995; Kleinmuntz & Schkade, 1993). Thus, they have to predict the time and effort that they should invest in a decision as well as the resulting accuracy. However, their predictions are seldom perfect. They err in anticipating how much time and effort a strategy will take and in anticipating how accurate a strategy will be. Sometimes, greater scrutiny does not lead to more accurate decisions.

As stated above, both insights are relevant to the problem at hand. Even in the relatively paternalistic Dutch system, where most people have little to no freedom of choice in their occupational retirement arrangement, there are decisions to be made. People can choose to increase the contribution rate (if possible), to purchase a life annuity, or to open an additional retirement savings account with an insurance company or a bank. Other possibilities include investing in the stock market, repaying a mortgage loan, or choosing to retire later. There are obvious advantages to taking such actions as early as possible (speed), but people also want to make the best possible decision (accuracy). Delay of choice has the benefit of greater anticipated accuracy, and this need for greater accuracy is particularly strong when decisions are important or irreversible (McAllister et al., 1979), which is definitely the case for one-time financial decisions with great consequences such as retirement saving.

It is possible that people delay decisions even without making a deliberate tradeoff between the (anticipated) costs and (anticipated) benefits. Research on heuristics shows that people often make decisions based on a single cue instead of on an elaborate analysis of costs and benefits (Gigerenzer & Gaissmaier, 2011; Tversky & Kahneman, 1974). While such research mostly refers to decisions between two alternatives, it may also apply to decisions between action and inaction.

The perceived importance of a task or decision can be a reason for inertia. People seem to use decision importance as a cue for delay of decision (Krijnen, Zeelenberg, & Breugelmans, 2015). Participants were more likely to delay their enrollment in a hypothetical retirement saving plan when decision importance was emphasized or increased. Moreover, they delayed important decisions without regard to other relevant factors, such as the financial cost of waiting and the instrumentality of delay (i.e., whether delay would lead to more information or better options). Other research also points to a strong link between perceptions of importance and perceptions of difficulty: people intuitively associate important decisions and tasks with difficulty and the exertion of mental effort (Schrift, Netzer, & Kivetz, 2011; Sela & Berger, 2012).

To summarize, people assume – often rightfully so – that investing more time and effort leads to more accurate decisions and better outcomes. Based on this assumption, they seem to interpret importance as a cue to invest time and effort in a decision or task, regardless of whether this investment and the accompanying delay will improve or harm the outcome. In retirement saving, this logic may cause people to delay, even if this comes at a long-term cost.

The solution to this problem is not straightforward. The truth is that retirement saving *is* important, and this fact cannot and should not be hidden from consumers. However, it is crucial to realize that inertia in the form of decision delay can result from good intentions. People often delay action because they want to be make a good decision. Unfortunately, the provision of financial incentives, financial communication, and financial education may contribute to this problem (Krijnen, Breugelmans, & Zeelenberg, 2014). While the goal of such interventions is to motivate and activate consumers, research indicates that increasing, emphasizing, or explaining the importance of retirement savings can backfire by causing people to wait longer.

It is crucial that people feel they can make accurate decisions and take effective action in the domain of retirement saving, also without spending a

lot of time and effort. An effective solution involves two ingredients. The first is to shift focus in communication and policy from the long-term importance of retirement saving to the urgency of retirement saving. Most people already know and understand that retirement saving is important for their future. Instead, it may be more valuable to communicate and emphasize how acting sooner rather than later contributes to better outcomes. The second ingredient is a drastic simplification of the choice process (Sunstein, 2016). This can include providing simpler and less information, reducing paperwork requirements, making option comparison and filtering more straightforward, and providing preference learning tools (Broniarczyk & Griffin, 2014). Taken together, we recommend that policy and communication should be less concerned about the “why” of retirement saving and more about the “why now” and “how” of retirement saving.

Regret Avoidance

Another possible benefit of inertia is the avoidance of regret. People experience regret when they realize that an outcome could have been better, if only they had decided or acted differently (for an overview, see Zeelenberg & Pieters, 2007). The possibility of regret is often anticipated before a decision is made, motivating an avoidance of options that potentially cause regret (Zeelenberg, Beattie, Van der Pligt, & De Vries, 1996).

People judge action leading to a bad outcome as worse than inaction that leads to the same bad outcome (Spranca, Minsk, & Baron, 1991). In general, people also imagine greater regret from actions than from inactions (Kahneman & Tversky, 1982; Landman, 1987; Ritov & Baron, 1995). However, when looking back at their lives, people indicate that they regret inactions more than actions (Gilovich & Medvec, 1994, 1995). For instance, at the end of their lives, many people regret not pursuing the education that they would have liked most. This suggests that the intensity of regret from actions and inactions changes over time, with people regretting actions more on the short term and inactions more on the long term.

The question is how these patterns of regret affect people's choices in life. Given the motivation to avoid regret, are they more likely to take action or to remain inactive? Research suggests the latter. People have a preference for staying with the status quo (Samuelson & Zeckhauser, 1988), sticking with the default (Simonson, 1992), deliberating extensively (Reb, 2008), postponing decisions (Janis & Mann, 1977), and avoiding decisions altogether (Beattie, Baron, Hershey, & Spranca, 1994). When uncertain about what the best option is, people often prefer inertia as a means to avoid potential regret in the present, disregarding the possible regret over inertia in the future.

Research on the role of feedback and responsibility in regret has valuable implications for inertia in retirement saving. People experience (or anticipate) more regret when they receive (or expect) feedback about what could have been if they had acted differently (Zeelenberg & Beattie, 1997; Zeelenberg et al., 1996). Also, people experience (or anticipate) more regret when they feel responsible for their decisions (Ordóñez & Connolly, 2000; Zeelenberg, Van Dijk, & Manstead, 1998). Evaluating the consequences of inertia in retirement saving can be difficult because people receive little immediate feedback and feel little responsibility. For instance, if a self-employed person decides to enroll in a retirement savings plan and wants to evaluate this decision after one year, the comparison is obvious: "How much would I have saved if I had not done anything?"² However, if the same self-employed person had stayed inactive, it would be less clear how to evaluate the consequences of this inaction. Often, there is no clear benchmark to compare inaction to, nor is there a specific moment at which the person decides to not save for retirement. As a result, people may anticipate little immediate regret from inertia.

Feedback and responsibility are not only part of the problem; they may also be solutions to the problem. Inertia becomes less attractive when people

² Note that it is possible to make various other comparisons. For instance, the self-employed person could compare the outcome to a situation in which he or she would have saved more. However, this comparison is less likely because it is more complex to evaluate than the obvious benchmark of not saving at all.

anticipate real, concrete, short-term, interpretable feedback about its consequences and about what could have been if they had taken action. Responsibility can be increased by ‘prompting’ people to make active decisions about their retirement at distinct moments in life. There is support for this idea from research on 401(k) enrollment in the United States. The number of newly hired employees who enrolled in a company’s retirement plan increased by 28% when the original opt-in enrollment (i.e., employees are not enrolled by default and can choose to enroll) was changed to an active choice enrollment (i.e., employees make an active choice between enrolling and not enrolling; Carroll, Choi, Laibson, Madrian, & Metrick, 2009). Similar active choice policies have been found to double the number of people donating blood (Stutzer, Goette, & Zehnder, 2011) and to significantly improve adherence to medication (Keller, Harlam, Loewenstein, & Volpp, 2011).

Providing feedback on the consequences of inertia may have a negative side effect. Inertia as a form of regret avoidance is worse when people realize that they have missed a much better opportunity in the past. This is inaction inertia, the tendency to forego an attractive opportunity because an even more attractive opportunity was missed before (Tykocinski, Pittman, & Tuttle, 1995; Van Putten, Zeelenberg, Van Dijk, & Tykocinski, 2013). In one of the initial studies on inaction inertia, participants imagined that they were considering whether to join a frequent flyer program (Tykocinski et al., 1995, p. 795). Joining the program was attractive; participants would immediately accumulate miles towards a free trip. Nonetheless, participants indicated being less likely to join (i.e., to take the attractive opportunity) if they had missed a much better opportunity to join in the past, compared to when the past opportunity was similar to the present one and to when no past opportunity was mentioned. Other studies have found inaction inertia to play a role in people’s tendency to switch to other brands after price promotions (Zeelenberg & Van Putten, 2005) and reluctance to sell stocks after missing better opportunities to do so in the past (Tykocinski, Israel, & Pittman, 2004).

Inaction inertia may also play a role in retirement saving. For instance, a woman aged 45 realizes that she is not saving enough for her retirement. She

learns that the perfect moment to start saving was at age 25, when returns on her investment would have been much higher than now, twenty years later. Extending the past research on inaction inertia, we suspected that in these situations people would be less likely to start saving even though doing so at age 45 would still be better than not doing so at all. In a series of experiments to examine these ideas, we found initial evidence for inaction inertia in retirement saving decisions (Krijnen, Breugelmans, Zeelenberg, & Van Putten, 2016b). Participants indicated less willingness to enroll in a retirement savings plan when they first read about a much better opportunity in the (distant) past than when they first read about an only slightly better opportunity in the (recent) past. Based on these initial findings, we see the possibility that people fall prey to a vicious cycle of inaction: the likelihood of saving may decrease the longer one remains inactive.

Because of the potential role of inaction inertia in retirement saving, caution is warranted when providing feedback about how much one could have saved. The anticipation of such feedback may activate some people through anticipated regret. Yet for others, the same feedback may be a reminder of better opportunities from the past, causing even more inertia. Only when current saving opportunities are explicitly ‘decoupled’ from the past may people again realize that it is always better to start saving for retirement today than tomorrow (Van Putten, Zeelenberg, & Van Dijk, 2007, 2008). Current opportunities can be decoupled from past opportunities by, for instance, indicating how present saving opportunities are inherently different from past saving opportunities or by presenting opportunities as active choices between multiple options.

Taken together, we see that people are motivated to avoid short-term regret. Action typically causes more short-term regret than inaction, and therefore people remain inactive unless they have strong, justifiable reasons to take action (Zeelenberg, Van den Bos, Van Dijk, & Pieters, 2002). Providing feedback and prompting people to make active choices may activate them. However, providing feedback may also backfire through inaction inertia.

Confidence

Even in situations where all information is readily available, people often prefer to delay a decision (Bastardi & Shafir, 1998; Tykocinski & Ruffle, 2003). One reason for this is that inertia can make people more confident about their ability to make a correct decision. People gain confidence through delay, even if the delay is ‘non-instrumental’, in the sense that it does not lead to more information or an objectively better decision. Hence people’s tendency to ‘sleep on it’ before making consequential decisions.

When it comes to retirement saving, we know that a substantial number of people have little confidence in their own capabilities. A survey administered by Nibud (2015) asked a representative Dutch sample to indicate their agreement with statements about retirement finance. To the statement “If I wanted to get an overview of my financial situation after retirement, I would have no idea where to start”, 28.7% answered “I agree” or “I completely agree.” In addition, to the statement “If I would have to arrange my own pension, I would be very afraid to make the wrong choices”, 34.6% answered “I agree” or “I completely agree.” These figures indicate that a substantial number of Dutch people have little faith in their own financial capabilities.

A possible intervention is to increase the general population’s confidence in their financial abilities. However, simply providing more information is no guaranteed effective strategy to accomplish this goal. A recent meta-analysis by Fernandes et al. (2014) found that financial education attempts had little to no effect on financial behavior. Moreover, Hadar, Sood, and Fox (2013) found that providing people with financial information could even have the opposite effect. After reading useful yet complex information, participants had less instead of more confidence about their financial knowledge. Attempts to improve financial knowledge carry the risk of decreasing people’s confidence and negatively affecting downstream financial behavior.

On the upside, Hadar et al. (2013) report more promising results from interventions that are directly aimed at improving people's subjective instead of objective knowledge. For instance, participants who answered an easy question about retirement saving rated their own financial knowledge as higher than participants who answered a difficult question about retirement saving. In turn, this higher subjective knowledge led to a greater willingness to join a 401(k) plan. In support of these findings, Van Rooij et al. (2012) report that Dutch participants with high confidence in their financial abilities are more likely to plan for retirement, independent of their objective financial knowledge. Thus, whether people take action and prepare for retirement may be positively impacted by the confidence they have in their own financial abilities³.

In short, many people have low confidence in their own financial abilities and often delay for the sake of gaining confidence. Overall, providing financial education has little effect on their financial behavior (Fernandes et al., 2014). Moreover, providing as much financial information as possible can further complicate retirement saving and lead to lower confidence. Instead, financial education attempts should aim at increasing people's confidence in their financial capabilities through simplification of retirement saving.

Flexibility

Another possible reason for inertia is that it provides or leads to retention of flexibility. People value the freedom of choice and being able to switch options, especially when uncertainty about their future preferences is high (Jones & Ostroy, 1984; Kreps, 1979). Strongly related to this preference for flexibility is the psychological reactance of people to committing to a single option and hence giving up the freedom to choose alternative options (Brehm & Brehm, 2013). In other words, choosing one option can feel like losing other

³ There is also evidence for a negative effect of too much confidence in financial decisions (e.g., Hoffman & Post, 2014). For instance, García (2013) suggests that people with high confidence in their own capabilities may stop acquiring information altogether. We suspect that such 'overconfidence' plays a role in retirement saving decisions as well.

options (Carmon, Wertenbroch, & Zeelenberg, 2003), and it is this feeling of loss that may cause negative arousal and avoidance (Tversky & Kahneman, 1991).

Shin and Ariely (2004) examined whether these two factors – the preference for flexibility and the aversion to losses – play a role in people’s tendency to ‘keep doors open’. In their experiments, they let participants explore options before making a decision. For half of the participants, options would disappear if they had not been looked at for a period of time. Results showed that people were willing to invest resources in order to keep all options available, even when those options were irrelevant to the decision. A final study found that, in this particular game, the effect was mainly driven by aversion to losses and less so by preference for flexibility.

In retirement saving, taking action often involves making a commitment, and thereby limiting future choice options. Currently, second pillar retirement plans in the Netherlands provide no or little flexibility (Nijboer & Boon, 2012). However, in cases where people do have freedom of choice, such as in third pillar plans, initial decisions are typically binding and consequential. The more distant retirement is, the more uncertain people are about their future wants and needs. They may prefer to avoid such commitments, retain flexibility, and keep options open until uncertainties resolve (Amador, Werning, & Angeletos, 2006; Kreps, 1979; Krishna & Sadowski, 2014).

Sometimes, the fear of giving up flexibility or losing options is partly unfounded. First, many actions in retirement saving may be perceived as a commitment, even when they do not limit future choice. For instance, going to a financial advisor or contacting a financial institution for information does not affect the availability of other options. However, people can still perceive this action as a commitment and therefore postpone it. Second, people sometimes wait for uncertainties to resolve, even when these uncertainties turn out to be irrelevant to their decisions (Shafir, 1994; Shafir & Tversky, 1992; Tversky & Shafir, 1992b). For instance, a self-employed person may wait to

save for retirement until he or she is sure about starting a family, even though such person would eventually prefer to save for retirement either way.

To motivate action in retirement saving, we propose two possible strategies. The first is to increase and emphasize the flexibility that people have, as well as the reversibility of actions and decisions. People are less likely to delay decisions when a decision is reversible (Krijnen et al., 2015). Clothing retailers are aware of this and offer money-back guarantees to motivate people to take action and buy a piece of clothing, even when uncertain. Whereas money-back guarantees are implausible in retirement saving, there are situations where people can revise or (partly) reverse their decisions and actions at a later point in time. For instance, meeting with the retirement saving expert of Company X does not restrict a person's possibility to contact Company Y later on. Emphasizing the non-restrictive nature of financial advice could activate people.

Second, prompting people to 'think through uncertainties' can provide insight into the irrelevance of these uncertainties for their retirement saving inertia (Shafir, 1994; Shafir & Tversky, 1992). People may believe that they have valid reasons to postpone action, but when asked what they are waiting for, they may realize that these uncertainties are not relevant to the decision at hand.

The preference for flexibility and its role in causing inertia should also be considered in the current discussion on flexibility in the Dutch retirement system (e.g., Bergamin, Bovenberg, Gradus, & Graveland, 2014; Commissie Goudswaard, 2010; Nijboer & Boon, 2012; Nijman & Oerlemans, 2008; Wijzer in Geldzaken, 2015). Introducing flexibility where no flexibility exists now (e.g., in second pillar arrangements) may increase the negative consequences of inertia. However, increasing or emphasizing flexibility, reversibility, and freedom of choice where this already exists as (e.g., in the third pillar) may instead motivate people to take action.

Thus, other reasons for inertia are the preference for flexibility and the aversion to losing options. People may perceive action as an irreversible commitment and therefore prefer not to act. If this is the case, emphasizing flexibility and reversibility, as well prompting people think about their reasons to wait, could motivate action.

Present-biased Preferences

People discount outcomes over time, meaning that distant future outcomes weigh less heavily than immediate outcomes. Temporal discounting implies that the benefits of an action, such as financial reward or pleasure, are valued less when they are distant in time than when they are immediate. For instance, receiving a €1,000 bonus 1 year from now is less attractive than receiving the same €1,000 bonus right away. Temporal discounting applies also to non-monetary outcomes. For instance, doing something fun today seems more attractive than doing the same fun thing one year from now. In fact, people like immediate benefits so much that they often prefer smaller, sooner benefits to larger, later benefits. Think of how most people prefer watching a good movie to reading about the difference between stocks and bonds. Watching the movie is immediately rewarding (i.e., it is fun) for most people. Reading about stocks and bonds is not immediately rewarding. The only benefits of this activity are the possibly higher financial returns that materialize in the future.

Besides discounting the benefits of action, people also discount the costs of action. Resources required to perform the action (e.g., time and effort) are valued less in the future than in the present. For instance, people may perceive vacuum cleaning as less time-consuming in the future than in the present. Together, the pattern of discounting benefits and costs over time causes a ‘present bias’: people put greater weight on benefits and costs in the present than on benefits and costs in the future (Ainslie, 1975; Akerlof, 1991; Strotz, 1955).

Present-biased preferences cause a specific form of inertia, that of procrastination. People typically procrastinate on tasks that involve immediate costs but provide few immediate benefits, such as studying for an exam, doing the dishes, or saving for retirement (O'Donoghue & Rabin, 1999). Such tasks typically require an immediate investment, in the form of effort, time, or money, whereas the associated benefits are experienced in the future. People perceive the required up-front investments as less painful in the future than in the present, causing them to postpone the task. This reasoning repeats itself over and over again, resulting in a cycle of procrastination. In other words, people procrastinate tasks or actions that they intend to do, but that they do not like to do right now.

Procrastination plays a role in many aspects of retirement saving⁴. People know that they should read the letters from their retirement fund, but they dislike the necessary mental effort. People know that it can be smart to meet with a financial advisor, yet they dislike the time that it takes out of their busy schedule. Van Rooij and Teppa (2014) found evidence for procrastination as a specific form of inertia in the domain of retirement saving. According to their analysis, people are less likely to deviate from the default if doing so is more complex (i.e., if they score low on financial sophistication). Thus, people procrastinate if they are overwhelmed by the immediate mental effort that is needed to do so.

Even though improving the financial know-how of the Dutch population may be effective in overcoming procrastination, we propose a more logical first step, namely, make the necessary tasks or actions easier. People are less likely to procrastinate tasks or actions that need only little investment in terms of time and effort. The Dutch Tax and Customs Administration ('Belastingdienst') has relied heavily on this strategy by providing simplified digital tax return forms and pre-filling most information. Like filing tax returns, preparing for retirement is a hassle for most people.

⁴ In a recent Netspar NEA Paper, we analyzed the problem of procrastination and its relevance for retirement saving in more detail (Krijnen et al., 2014).

People procrastinate retirement preparation because they expect it to be difficult, confusing, complex, and time-consuming. Procrastination would be less likely if, instead, people think that small, simple, and quick steps can help them towards better retirement saving. In our analysis of three independent surveys, we found initial evidence that perceived difficulty of retirement preparation is indeed a stronger predictor of procrastination than perceived importance of retirement saving (Krijnen, Breugelmans, Zeelenberg, & Van der Schors, 2016c).

A second strategy to counter procrastination is to make the action or task attractive. This strategy is often used to promote other behavior that has long-term benefits. For instance, many apps aim to promote healthy behavior by making physical exercise fun and rewarding (e.g., *Zombies, Run!*; *Superhero Workout*). Presumably, most people know that regular exercise produces health benefits. However, these benefits come into effect only in the distant future. These apps may motivate healthy behavior because they increase the perceived immediate benefits of exercise.

It may seem difficult, if not impossible, to make retirement saving fun and attractive. A related strategy we deem worth exploring in the context of retirement saving is to emphasize (or to let people anticipate) the immediate positive affective responses to completing a financial task. Anticipated affective responses play an important role in predicting and changing behavior (Richard, Van der Pligt, & De Vries, 1996a, 1996b). In retirement saving, people dislike the anticipation of having to take action in the future, as well as the uncertainty that they experience in the meantime. This is illustrated by the fact that, in the United States, retirement saving is the number one financial worry (Gallup, 2015), and that, in the Netherlands, retirement saving is one of people's top financial priorities (Nibud, 2015). If people worry about retirement saving, then taking action to end this worry may have immediate affective advantages. Often, people are motivated to do aversive tasks simply because they imagine how good will feel immediately afterwards. When it comes to retirement saving, it could be effective to

communicate that doing finances creates peace of mind, a sense of fulfilment, or even pride in oneself.

Providing people with commitment options for future saving has already proven to be another effective way to battle procrastination. Thaler and Benartzi (2004) incorporated the idea of commitment in their Save More Tomorrow plan. Instead of asking eligible employees if they wanted to start saving for retirement right away, the Save More Tomorrow plan asked employees if they wanted to start saving in the future. People deem the future a more suitable time to save than the present and are therefore more likely to commit to future enrollment. In the Netherlands, it may be useful to have commitment options available for the self-employed. Because of the processes described here, the option to start saving next year may be more appealing than the option to start saving right away.

Commitment options are not always plausible or easy to implement. In such cases, providing so-called implementation intentions can serve as a less enforcing and more widely applicable solution. Implementation intentions can be described as ‘soft’ commitment options. People are prompted to make concrete plans that simplify the execution of behavior, without a binding agreement or commitment to an outside party (Gollwitzer, 1999). Specifically, people contemplate where, when, and how to perform a certain behavior. Forming such concrete plans has already proven effective in helping people reduce fat intake (Armitage, 2004), increasing influenza vaccination rates by 12% (Milkman, Beshears, Choi, Laibson, & Madrian, 2011), and getting the unemployed back to work (Behavioural Insights Team, 2015).

We think that soft commitment options can promote a wide range of behaviors related to retirement saving, not just plan enrollment. People could be prompted to plan a personal finance day once every month, as well as to describe what they would be doing that day (e.g., “on Friday, January 13, I will check how much I have saved already by looking at www.mijnpensioenoverzicht.nl”). Ideally, implementation intentions are as concrete as possible and include some kind of reminder.

To summarize, people have present-biased preferences. The resulting tendency to procrastinate is strongest for tasks or decisions that require an immediate investment and that lead to payoffs or benefits only in the distant future. Possible solutions include making retirement saving easy, making retirement saving attractive or immediately rewarding, and providing people with both hard and soft commitment options.

Undue Optimism

People sometimes postpone a decision or task because they are optimistic about the future as a more appropriate time for completion. People are overly optimistic about how much time or money is required to complete a task in the future (Buehler, Griffin, & Ross, 1994). When making plans, they focus on the unique characteristics of the task and on how their plans might unfold, but they ignore how most plans in the past have not worked out as expected. Because of this biased reasoning, people demonstrate a planning fallacy: predictions about the time or money it takes to complete a task are overly optimistic (Kahneman & Tversky, 1979).

A second type of optimism is people's belief that they will have more resources available in the future than in the present (Tam & Dholakia, 2011; Zauberman & Lynch Jr., 2005). For instance, people may believe that there will be enough time to think about retirement saving in the future. However, once the future becomes the present, time is often scarce and postponement seems the best thing to do again. In a similar way, people may think that they currently have insufficient money to increase their retirement savings, but that this will be different in the future.

To summarize, when making plans, people are generally too optimistic in two ways. First, they underestimate how much time, effort, and money a specific task will require in the future. Second, they overestimate how much time, effort, and money they will have available to execute their plans in the future. Both types of optimism contribute to the problem of procrastination as a specific form of inertia, because tomorrow always seems a more

appropriate time for doing a task than today (Lynch Jr. & Zauberman, 2006; Pychyl, Morin, & Salmon, 2000). The possible solutions to this problem within the context of retirement saving are similar to those discussed in the section on present-biased preferences: increase people's understanding of how they can save for retirement, simplify information and required actions, and provide commitment options.

Why Now and How? Remedies for Inertia in Retirement Saving

So far, this article has provided an overview of possible reasons for action and reasons for inertia in retirement saving (see Table 4).

In the previous section, these reasons led to initial recommendations for policy and communication in the domain of retirement saving. In this section, we aim to bring more structure to these recommendations. We do so by taking the individual decision-maker's perspective instead of the policymaker's perspective, as we base our recommendations on an important insight about inertia: *while people know **why** they should be saving for retirement, they do not know **why now** and **how***. People take no action towards retirement saving because they have a hard time answering two questions: (1) 'Why should I take action right now?', and (2) 'How should I take action?' We structure this section around these two questions.

In the first part, 'Why Now?', we recommend (1) provision of timely reminders, (2) use of active choice framing, and (3) implementation of deadlines. The goal of these recommendations is to make neglected or underestimated aspects of retirement saving more apparent. In the second part, 'How?', we recommend (1) simplification, (2) provision of commitment options, (3) restriction of choice, and (4) use of smart defaults. The goal of these recommendations is to make retirement saving easier. See Table 5 for an overview of the policy recommendations.

In both parts, we return to the specific recommendations, analyze the logic that connects them, and discuss the relevance of these recommendations to the current debates and developments in the Dutch retirement system. Our aim is to be as specific as possible, but we also acknowledge the difficulty in doing so. Inertia plays a role in all stages of retirement saving, and the reasons discussed in this article lead to a wide variety of possible implications for a wide variety of problems. The implications in the remainder of this article serve as concrete examples and illustrations. Additionally, we want to emphasize that these recommendations are based on our reading of the academic literature and our research on human decision-making. We believe it is important to not simply implement recommendations, but to first test them with the relevant population, and to adjust them based on such testing. This will lead to evidence-based interventions that are much more likely to result in favorable behavioral change.

Table 4

Reasons for Action	Reasons for Inertia
<p><i>I: Financial Cost</i> Starting to save early in life is expected to lead to greater wealth after retirement than starting to save late in life. Nonetheless, people avoid action because of:</p> <p><i>a: Ignorance.</i> People do not know the cost of waiting.</p> <p><i>b: Neglect.</i> People do not consider the cost of waiting when making decisions.</p> <p><i>c: Underestimation.</i> People underestimate the cost of waiting.</p>	<p><i>I: Accuracy</i> People expect that investing more time and effort will result in more accurate decisions.</p> <p><i>II: Regret Avoidance</i> People anticipate more short-term regret from action than from inaction. Therefore, people remain inactive unless they have strong, justifiable reasons to take action.</p> <p><i>III: Confidence</i> People delay decisions in order to gain confidence, even when this delay is non-instrumental.</p> <p><i>IV: Flexibility</i> People delay choice because they prefer flexibility and dislike losing options.</p> <p><i>V: Present-biased Preferences</i> People procrastinate tasks and decisions because outcomes are discounted over time.</p> <p><i>VI: Undue Optimism</i> People procrastinate tasks and decisions because they are overly optimistic about the required and available resources in the future.</p>

Table 5

Why Now?	How?
<p>People know that retirement saving is important, yet many do not know why it is urgent. We recommend:</p>	<p>People know that retirement saving is important, yet many do not know how to take action. We recommend:</p>
<p>I: Provide timely reminders about the costs of waiting and the benefits of immediate action. Timely reminders emphasize urgency instead of importance, and make the appropriate aspects prominent at the appropriate time.</p> <p>II: Use active choice framing in communication and choice architecture. Active choice framing focuses people's attention on aspects that normally go unnoticed and makes people feel responsible for both their actions and inaction.</p> <p>III: Implement deadlines to make the cost of waiting more salient. Deadlines create a sense of urgency and a clear moment for people to choose actively between action and inaction.</p>	<p>I: Simplify retirement saving to stimulate immediate action. Financial education and communication should focus on 'how'. Ideally, communication provides people with simple steps.</p> <p>II: Provide commitment options. Give people the option to make decisions for their future, either binding or non-binding. Commitment options build on the tendency of people to perceive the future as a more appropriate time for retirement saving.</p> <p>III: Restrict choice and set smart defaults. When choice is restricted and/or smart defaults are used, inertia will have fewer negative consequences.</p>

Why Now?

People know that retirement saving is important, yet many do not know why it is urgent. The financial costs of inertia are often far from apparent, or they are hard to estimate and therefore not fully considered by people. Moreover, the immediate psychological benefits of inertia outweigh the uncertain, unclear, and delayed financial benefits of taking action. Based on this reasoning, we arrive at three recommendations: provide timely reminders, use active choice framing, and implement deadlines.

Provide timely reminders about the costs of waiting and the benefits of immediate action. This type of communication should differ from most of the generic financial education that governments, retirement funds, and employers currently offer to consumers. The focus should not be on the *importance* of retirement saving, but on the *urgency* of retirement saving. Most people already know that retirement saving is important, but not why it is urgent. Emphasizing importance may backfire by causing delay, whereas emphasizing urgency may encourage immediate action. Timely reminders should also make the appropriate considerations clear at the appropriate time. Providing people with general information about retirement saving is pointless if people do not use this information when making decisions (or when ‘choosing’ to not take action). Obviously, knowing when people are most likely to be thinking about retirement saving is a prerequisite for successful implementation.

In the Netherlands, second pillar retirement arrangements are becoming less generous. However, people’s expectations are often not in line with reality, and it has proven difficult to get people to look up information about their own financial situation. For instance, 40% of participants in a survey by Wijzer in Geldzaken (2014) indicated they had *never before* thought about their income and spending after retirement. The same survey found that even the most popular information sources were used by only a small percentage of participants. The website www.mijnpensioenoverzicht.nl was used by 34%, and the individual pension statement (‘UPO’) was used by 29%.

Overall, around half of the participants did not consider retirement saving as urgent. Timely reminders can increase a sense of urgency, and as such they direct people to information sources at a time when they are most relevant and when subsequent action, if needed, is most likely.

Let us give an illustration of when, where, and how timely reminders can be implemented in the Dutch retirement system. People whose retirement age lies in the distant future – let us say, those under 40 – are particularly unlikely to plan for retirement. For this group, there may seem little reason to take immediate action. However, there are moments, for instance right after getting a promotion or a pay raise, when people are more likely to think about their financial future. The employer could use this moment to send the employee a reminder, in the form of a letter or email. This reminder could include a link to www.mijnpensioenoverzicht.nl and briefly mention the downside of delaying a visit to this website by another year. Contrary to typical financial information, this type of information reminds people of the relevant aspects of a decision at the appropriate moment.

Use active choice framing in communication and in choice architecture. Active choice framing focuses people's attention on the aspects of a decision that normally go unnoticed. People encounter many opportunities to take action about retirement saving, yet rarely are they required to actively choose between 'doing it now' and 'doing it later'. Framing opportunities as choices can make the cost of waiting and other consequences of the status quo more apparent and therefore decrease inertia. Moreover, people feel more responsible for their decision if they actively choose between taking the decision now or later than if they opt in. This increase in responsibility is expected to make inertia for the sake of avoiding regret less likely.

In the Netherlands, a growing number of self-employed persons are not automatically enrolled in a second pillar retirement plan. Recent debates about this problem have focused on the type of second pillar arrangement

that should be available to this group (AFM, 2015a; De Jong, 2009). The literature on inertia has additional implications for how to present these arrangements to the self-employed. Active choice framing could be implemented to help people who transition from wage-employment to self-employment. When they finalize their business paperwork, they could be asked to fill in a form which lets them actively choose between (1) enrolling in a retirement saving plan now or (2) postponing the decision to next year. Framing opportunities as choices, and making these choices active, can decrease the likelihood of inertia.

Implement deadlines to make the cost of waiting clear. Because inertia often takes the form of passive and repeated delay, it is hard to quantify or value its consequences. This makes inertia a psychologically attractive option, as short-term regret is least likely in the absence of concrete and immediate feedback. Implementing (binding or non-binding) deadlines can have two advantages. First, a deadline creates a psychological sense of urgency, even when there are no material consequences to missing the deadline. Second, a deadline serves as a moment for people to ‘choose’ between taking action and remaining inactive, which can be particularly effective in the anticipation of future feedback about outcomes.

One could think of easy ways to create deadlines without imposing additional costs on people. For instance, the financial sector as a whole could send out individual pension statements (UPOs) around the same time each year. In addition, it could urge people to read their pension statement before a specific date or within a certain period (e.g., within two weeks after receiving the statement). Before the deadline, if there are any problems with or questions about the statement, people can easily contact the financial institution. Such a deadline has no formal consequences, because people can of course always contact their financial institution if they have problems or questions. However, in practical terms, the deadline creates a sense of urgency and a clear moment for people to choose between taking action and remaining inactive.

How?

People know that retirement saving is important, yet many do not know how to take action. Retirement saving is perceived as complex, laborious, and time-consuming. People fear the possibility of regret, value flexibility until uncertainties resolve, wait to gain confidence in their financial abilities, and perceive the future to be a more appropriate time for taking action. Based on these reasons for inertia, we come to three recommendations: simplify, provide commitment options, and restrict choice and set smart defaults.

Simplify retirement saving to promote immediate action. People procrastinate difficult tasks that have few immediate benefits. Procrastination would be less likely if retirement saving were easier. Current financial education and communication towards consumers mostly focuses on the ‘why’ of retirement saving. It explains the importance and the possible long-term benefits of saving. Instead, financial education and communication towards consumers should focus on ‘how’. Ideally, communication provides people with simple steps that take only minutes and need little preparation.

Take the following problem. Many people leave their individual pension statement unopened or give it little attention. They know the information to be of importance someday, but have little clue how to distill relevant information from the statement and what to do with it (AFM, 2010b; Kuiper, Van Soest, & Dert, 2013; Lentz & Pander Maat, 2013). An international evaluation of pension statements concluded that the document should do more than just provide information (Antolín & Harrison, 2012). Instead, it should encourage and facilitate action. In general, providing information about retirement serves one clear purpose: helping people build sufficient retirement wealth. As long as it is not clear how a statement, letter, or website serves this purpose, not even indirectly, then its necessity, design, or content should be reconsidered.

More specifically, we recommend drastic simplification of the information provided via the individual pension statement, its cover letter, and other forms of communication (e.g., www.mijnpensioenoverzicht.nl). Simplification increases the likelihood of people reading the information, understanding the information, and following up with action if needed. Fortunately, improvements have already been made in the Netherlands. For instance, the focus on www.mijnpensioenoverzicht.nl is now on the individual's projected net income, thus making its consequences easier to grasp.

In the future, we believe specific attention can be devoted to the individual pension statement. It is crucial that people understand how to read the information and what to do with it, a vision that is shared by Dutch retirement organizations (Nell & Lentz, 2013). We would recommend adding a (uniform) letter or card explaining, in a few steps and in plain language, preferably using illustrations, how people should read their statement and what they can do as follow-up. Contrary to a cover letter or magazine explaining the importance of reading a pension statement, our proposed adjustments would focus on the action itself (e.g., “you need only two minutes to read your statement”), on immediate results (e.g., “afterwards you feel better for having more insight into your financial situation”), and on possible follow-up actions (e.g., “go to www.mijnpensioenoverzicht.nl for more information”).

Provide commitment options. People tend to see their future as bright. When it comes to the future, financial investments seem less impactful, laborious tasks less laborious, difficult decisions less difficult, and time-consuming actions less time-consuming. Also when it comes to the future, sufficient time, money, and willpower seems available, uncertainties are expected to be resolved, and people expect to have the confidence to make financial decisions. Irrespective of whether this bright view of the future is accurate or not, it is problematic in the context of retirement saving because it often withholds people from taking action right now. The future

is simply perceived to be a more appropriate time for dealing with tasks and decisions related to retirement saving, causing people to procrastinate.

Evidently, it is difficult to change the psychological mechanisms underlying procrastination. What can be done, however, is to design and communicate retirement saving options that put these psychological mechanisms to work to people's own advantage. Commitment options do exactly this, as they provide people the opportunity to make decisions that affect their future outcome but not their immediate outcome. Many people find saving for retirement attractive in principle, but they are reluctant to enroll because they do not want to invest money *right now*. Commitment options provide the ideal opportunity in this case. People can commit to saving but are not required to start investing money immediately. In other words, if the downside of enrolling in a retirement savings plan (e.g., having to put in money) is delayed, procrastination becomes less likely.

In practice, these commitment options could come in two forms: binding or subtle. One example of a possible binding commitment option in retirement saving is to let newly self-employed persons make decisions that become effective after a certain delay. Asking young entrepreneurs to commit to putting in money two years from now is psychologically different from asking them to commit to putting in money right away. Therefore, if a future commitment option is available, people will be more likely to select it. Two years later, people will be unlikely to quit because this takes time and effort and because people have grown accustomed to the idea of saving for retirement.

More subtle commitment options include what are called implementation intentions. Prompting people to set their own, non-binding, 'if-then' commitments has proven to be effective in other domains and can be implemented in retirement saving as well. A possibility is to couple specific retirement saving actions or decisions to other recurring financial matters (e.g., "after I finish doing my taxes, I take 30 minutes to check my retirement savings").

Restrict choice and set smart defaults. Our final recommendation accepts the fact that *some* people will refrain from action irrespective of any intervention; they will postpone or avoid retirement saving (Madrian & Shea, 2001). For such people, restricting their choices and using smart defaults can help, as inertia will have few negative consequences under those conditions.

In this sense, the current Dutch retirement system is a perfect example. For many employees, inertia has little to no negative effect. They can expect a reasonable retirement income for which they have had to take little to no action. If retirement plans introduce more freedom of choice, especially in the accumulation phase, the consequences of inertia become greater. The possibility to adjust retirement savings to personal wants and needs may sound appealing, but in reality, people will only postpone or avoid. Between 60% and 80% of Dutch participants find it important that aspects of their retirement arrangement are automatically taken care of by the pension fund (Van Dalen & Henkens, 2015). Based on the current analysis, we therefore recommend leaving choice restricted in situations where people have or see little reason to take action and have or see ample reason for inertia.

If, however, freedom of choice is implemented or already present, it is valuable to set the appropriate defaults carefully, as many people will stick with them. This recommendation also applies to the introduction of second-pillar retirement arrangements for the self-employed, which may be seen as a promising first step. We expect that inertia will cause a relatively low rate of enrollment in these plans. This is not because the self-employed do not want to save for retirement, or because they do not care about retirement. Instead, we believe that most reasons for inertia discussed in this article are particularly relevant to this group. Therefore, we would recommend making saving the default for the self-employed, as is already the case for most other employees in the Netherlands. Under such a default, people would be automatically enrolled in a retirement saving arrangement, while retaining the freedom to switch plans or quit altogether. Other intermediate options, ranging from the current opt-in system for the self-employed to the paternalistic mandatory

system for most other employees, are also possible. For instance, self-employed persons could be automatically enrolled in a retirement plan every year, with also every year the option to opt out. This kind of system would combine the idea of a smart default with repeated active choice framing. As with other opt-out systems, people would retain the complete freedom to opt out every year. However, because they would have to actively make this decision every year, they would deliberately choose when to save and when not.

Conclusion

People find retirement saving important and valuable. Nonetheless, many Dutch people remain passive when it comes to different stages of retirement saving. They take little action to improve their understanding of financial matters in general and of retirement saving specifically. They take little action to plan their financial future or to think about their expectations and their current situation. They take little action to adjust their saving strategy if necessary. How can we explain this inertia with regard to a subject as important as retirement saving?

In this article, we have provided an overview of explanations by analyzing the reasons for action and the reasons for inertia. The reasons for action are primarily financial. Saving requires an immediate financial investment, but inertia involves a cost in the long run. Because many people do not know, neglect, or underestimate these hidden, distant-future financial costs of waiting, they remain passive. Reasons for inertia are primarily psychological. Inertia can be explained by an increase in expected accuracy, avoidance of potential regret, increase in confidence, retention of flexibility, present-biased preferences, and undue optimism about the future.

The analysis of these reasons leads to one crucial insight: *whereas many people know **why** they should be saving for retirement, they do not know **why now** and **how***. In a final section, we therefore structured our recommendations for the Dutch retirement system around these two questions. In ‘Why Now?’, we

recommended timely reminders, active choice framing, and deadlines. The goal of these recommendations is to make neglected or underestimated aspects of retirement saving more visible. In ‘How?’, we recommended simplification, commitment options, and the restriction of choice and use of smart defaults. The goal of these recommendations is to make retirement saving easier.

We hope that this article will help to better understand the dynamics of inertia. Such increased understanding may lead to promising ways for improving people’s retirement saving. Helping people to save for retirement is only possible if we understand their reasons for not doing anything.

Chapter 3

Intention and Action in Retirement Preparation

Retirement saving is one of life's important financial matters. In spite of this, many people wait until late in their working lives before they start preparing for retirement. In a 2016 telephone survey, a representative sample of Americans indicated that "not saving for retirement early enough" was their top financial regret (Bell, 2016). Why would people delay retirement preparation if they later regret it? In this article, we observe that a common explanation – people delay retirement preparation because they do not find it important – is inadequate. We find that importance of retirement saving predicts intention to save but not actual saving. Perceived difficulty of retirement preparation does predict actual savings. Let us discuss the underlying reasoning in more detail.

Retirement saving policy typically builds on the assumption that people do not appreciate the long-term importance of retirement saving and that increasing importance promotes action. Tax advantages and employer matching make retirement saving important by providing long-term financial incentives (Antolín, De Serres, & De la Maisonnette, 2004; Attanasio, Banks, & Wakefield, 2004; Engelhardt & Kumar, 2007). Educating and informing eligible consumers about the benefits of such financial incentives emphasizes the importance of retirement saving (Choi, Laibson, & Madrian, 2005).

Unfortunately, the assumption that increasing importance promotes action appears to be inadequate at two levels. First, most people already care and worry about retirement saving but remain passive nonetheless (Choi, Laibson, Madrian, & Metrick, 2002; Gallup, 2015; Nibud, 2015). When we recently asked a representative sample of 1,537 Dutch persons to what extent they agreed with the statement "having enough retirement savings is important for me", 78% answered "I agree to some extent", "I agree", or "I fully agree" (Krijnen, Zeelenberg, & Breugelmans, 2016d). Second, research shows that policies aimed at increasing the importance of saving have little effect on actual retirement saving. Financial subsidies had almost no effect on savings rates (Chetty, Friedman, Leth-Peterson, Nielsen, & Olsen, 2014). Employer matching failed to raise 401(k) contributions even if information about these benefits was provided (Choi et al., 2005). A recent meta-analysis

concluded that financial education interventions explained only 0.1% of the variance in financial behavior (Fernandes, Lynch Jr., & Netemeyer, 2014)⁵. Our own research has revealed that emphasizing importance may actually backfire by causing decision deferral instead of spurring people to take action (Krijnen, Zeelenberg, & Breugelmans, 2015). If importance does not drive timely retirement preparation, what does?

To answer this question, we think it is necessary to distinguish between *intention* and *action* in retirement preparation. More specifically, we propose that the perceived importance of retirement saving does predict people's intentions to prepare, but not their actions. Instead, we propose that another factor, namely the difficulty of retirement preparation, predicts both intentions and actions. So, difficulty will be the primary factor in predicting retirement preparation, not importance. Let us explain the sources that guided our thinking on this issue.

The theory of planned behavior ("TPB") is one of the most often used theories about how intention relates to action (Ajzen, 1991). TPB poses that attitudes and a subjective norms predict intention. People plan to do things that they evaluate as favorable, beneficial, or important, or that other people expect them to do. But people do not always act on their intentions. To account for this intention-action gap, TPB includes perceived behavioral control, which refers to "people's perception of the ease or difficulty of performing the behavior of interest" (Ajzen, 1991, p. 183). According to the TPB, perceived behavioral control directly predicts both intention and action, whereas perceived importance affects action only indirectly, through intentions. Put differently, what people end up doing is a function of what they plan to do and what they think they can do. The role of perceived behavioral control in TPB resonates with ideas in action identification theory and temporal construal theory. Let us explain how.

⁵ Note that this meta-analysis includes many types of financial education and many types of financial behavior.

Action identification theory (Vallacher & Wegner, 1987) suggests that, when considering or performing an action, people use either higher-level identifications (why am I doing this?) or lower-level identifications (how am I doing this?). Stressing higher-level identification, for instance through an emphasis on importance, promotes stability and persistence in the execution of familiar, automated actions. However, a focus on lower-level identification is crucial for persistence in the execution of unfamiliar, difficult actions. Thus, for a task as complex as retirement preparation, understanding how to perform it may be more predictive of successful execution than understanding why to perform it.

Temporal construal theory (Liberman & Trope, 1998; Trope & Liberman, 2003) distinguishes between higher-level construal, with a focus on an action's desirability (i.e., why should I do this?), and lower-level construal, with a focus on an action's feasibility (i.e., how should I do this?). The theory also proposes that desirability considerations are relevant for planning the distant future, whereas feasibility considerations are more relevant for immediate action (Liberman, Trope, McCrea, & Sherman, 2007; McCrea, Liberman, Trope, & Sherman, 2008). Whether people take action depends mostly on the action's feasibility, not on its desirability.

In short, based on the theory of planned behavior, action identification theory, and temporal construal theory, we reason that importance would be related to intention but not directly to action. Following this line of reasoning, difficulty, similar to perceived behavioral control in TPB, would be related to both intention and action. These expectations are in line with literature on procrastination – the delay of an intended course of action (see, Steel, 2007, p. 66).

Procrastination is the result of people's tendency to put greater weight on considerations in the present than on considerations in the future (Ainslie, 1975; Akerlof, 1991; Fischer, 1999; O'Donoghue & Rabin, 1999; Strotz, 1955). Based on the link between procrastination and present-biased preferences, O'Donoghue and Rabin (2001) predicted that when people form

intentions, they consider all available information; both temporally distant considerations (i.e., importance) and temporally proximate considerations (i.e., difficulty). However, when people contemplate whether to take immediate action, they consider only temporally proximate considerations. This means that for our understanding of retirement preparation it is pivotal to distinguish between importance and difficulty.

Two preliminary tests of importance and difficulty as predictors of retirement preparation

As an initial assessment of the role of importance and difficulty in retirement preparation, we analyzed responses to two large surveys on financial behavior and attitudes. Both surveys were not developed to test our reasoning, but both included self-report measures which we use as proxies for importance, difficulty, and procrastination. We do note that the items used in these surveys are far from perfect. Nonetheless, they seemed appropriate for a first crude test.

The first survey was administered in 2013, by a market research company on behalf of Wijzer in geldzaken [Money Wise], the financial literacy platform of the Dutch Ministry of Finance ($N = 1001$, 49.8% female, $M_{\text{age}} = 44.12$, $SD = 11.49$, Range = 21 – 66)⁶. To assess procrastination, participants were asked to what extent they agreed with the statement “I frequently take time to learn about my retirement situation” (all questions were to be answered on scales with 1 = completely agree, and 5 = completely disagree). Importance of retirement income was assessed via the reverse-coded responses to the item “after retirement, I want to be able to spend as much money as I do right now”. Difficulty of retirement preparation was assessed via the reverse-coded responses to the item “I find it difficult to understand retirement information”⁷.

⁶ A report on the whole survey is published by Wijzer in geldzaken (2013).

⁷ For the current analyses, we excluded participants who answered that they did not know the answer to any of the three items.

We examined our predictions using linear regression analyses. Importance of retirement income had a significant negative effect on procrastination, $\beta = -.063$, $t(1015) = -2.368$, $p = .018$. Difficulty of retirement preparation had a significant positive effect on procrastination, $\beta = .549$, $t(1015) = 20.743$, $p < .001$. Together, importance and difficulty explained a significant amount of the variance in procrastination, $F(2, 1015) = 238.35$, $p < .001$, $R^2 = .320$, $R^2_{\text{Adjusted}} = .318$.

The second survey was administered in 2015, by a market research company on behalf of Aegon (a multinational life insurance, pensions, and asset management company located in the Netherlands; $N = 1018$, 51.2% female, $M_{\text{age}} = 46.10$, $SD = 15.38$, Range = 18 – 75). To assess procrastination, participants were asked to what extent they agreed with the statement “Arranging financial matters is something I often postpone” on a Likert scale from 1 (“disagree to a large extent”) to 7 (“agree to a large extent”). To assess importance of retirement income, we used reverse-coded responses to the item “please indicate how important you find having money later versus having money now?”, on a scale from 0 (“income after retirement more important”) to 100 (“current income more important”). To assess difficulty of retirement preparation, we used responses to the item “I dislike taking care of my finances”, on a Likert scale from 1 (“disagree to a large extent”) to 7 (“agree to a large extent”).

Importance of retirement income had a significant negative effect on procrastination, $\beta = -.094$, $t(998) = -3.111$, $p = .002$. Difficulty of retirement preparation had a significant positive effect on procrastination, $\beta = .328$, $t(998) = 10.841$, $p < .001$. Together, importance and difficulty explained a significant amount of the variance in procrastination, $F(2, 998) = 59.962$, $p < .001$, $R^2 = .107$, $R^2_{\text{Adjusted}} = .105$.

In both surveys, the standardized positive effect of difficulty on procrastination was much larger than the standardized negative effect of importance on procrastination. In the first survey, the standardized effect of difficulty was 8.7 times larger than the standardized effect of importance. In

the second survey, the standardized effect of difficulty was 3.5 times larger than the standardized effect of importance. Participants who found retirement income more important were slightly less likely to procrastinate. Participants who found preparing for retirement more difficult were much more likely to procrastinate.

These findings provide initial evidence of the different roles of importance and difficulty in retirement preparation. However, as noted above, both datasets were limited in that they were not designed to examine our reasoning. Hence the items were imperfect operationalizations of our theoretical constructs. Moreover, the measurements used single-item measures of procrastination as dependent variables. This not only limits the reliability of the measures, but more importantly it did not allow us to distinguish between people who intended to prepare for retirement and people who actually took action. Because this distinction is crucial for a more direct test of the idea that importance predicts intention but not action while difficulty predicts both intention and action, we devised a follow-up test in another national survey.

We contributed to a survey administered by the Dutch National Institute for Family Finance Information ('Nibud'). We inserted a set of questions assessing participants' intention and action in preparing for retirement, the importance of retirement saving, the difficulty of retirement preparation, and self-reported procrastination⁸. This set-up enabled us to use Latent Class Analysis ('LCA') on participants, based on their intentions and actions in six key preparations for retirement saving.

Method

A total of 1171 participants completed the survey. The sample was representative of the Dutch population between 25 and 64 years old in terms of age, gender, and region of residency. Mean age was 44.82 ($SD = 11.03$)

⁸ A report on the whole survey is published by Nibud (2015).

and 50.7% was female. Data was collected between June 30, 2015 and July 10, 2015.

Participants were presented with six key retirement preparations, as determined by Nibud's personal finance experts (see Table 1). For each of these, participants indicated whether they either (1) completed it without help, (2) completed it with help, (3) did not complete it but intended to do so in the future, or (4) did not complete it and did not intend to do so in the future.

To classify participants, we performed a latent class analysis using the poLCA package in R (<https://cran.r-project.org/web/packages/poLCA/index.html>). We included categorical responses to the six retirement preparation actions as variables. We ran the LCA for one to four classes and selected the four-class solution based on BIC (1 class = 18317.65; 2 classes = 14488.01; 3 classes = 11912.20; 4 classes = 10522.03).

Based on our interpretation of class-conditional probabilities, we assigned labels to the four classes, along the lines of the four answer categories: (1) completed-no help, (2) completed-help, (3) not completed-intention, (4) not completed-no intention. The LCA was then used to predict class membership for each participant. See Table 2 for the distribution of participants over the four predicted classes.

To distinguish between intention and action, predicted class was transformed into two binary variables: intention (0 = no, 1 = yes) and action (0 = no, 1 = yes). Participants whose predicted class was completed-no help, completed-help, or not completed-intention got a value of 1 on the variable intention. Participants whose predicted class was not completed-no intention got a value of 0 on this variable. Participants whose predicted class was completed-no help or completed-help got a value of 1 on the variable action. Participants whose predicted class was not completed-intention got a value of 0 on this variable. Participants whose predicted class was not completed-

no intention got no value on the variable action. See Table 2 for recoding from predicted class to variables intention and action.

Importance of retirement saving was measured by the statement “I find it important to have sufficient retirement savings later in life” (1 = completely disagree; 5 = completely agree). Difficulty of retirement preparation was measured by the statement “I find it difficult to understand retirement saving” (1 = completely disagree; 5 = completely agree). Procrastination was measured by the statement “If I would have to arrange my retirement saving individually, I would unnecessarily postpone making decisions” (1 = completely disagree; 5 = completely agree).

Table 1
Six key retirement preparations.

-
1. Keeping/storing your pension administration (e.g., pension statements) in a structural way.
 2. Finding out which sources of income you will have after retirement.
 3. Estimating how much money you need after retirement to live the life you want to live.
 4. Estimating your monthly income after retirement.
 5. Assessing what you can do to make sure that you can live the life you want to live after retirement.
 6. Assessing which financial product of which financial provider would best suit your situation.
-

Table 2

Distribution of participants over the four predicted classes and recoding from predicted class to variables intention and action.

Latent Class	N (%)	Recoded variables	
		Intention	Action
Completed- no help	283 (24.2%)	Yes	Yes
Completed- help	185 (15.8%)	Yes	Yes
Not completed- intention	447 (38.2%)	Yes	No
Not completed- no intention	256 (21.9%)	No	-

Results

We performed a binary logistic regression analysis with importance and difficulty as predictors and *intention* as dependent variable. The analysis yielded a positive effect of importance on intention, odds ratio = 2.40, $p < .001$, and a negative effect of difficulty on intention, odds ratio = 0.60, $p < .001$. The overall model was significant, $\chi^2(2) = 110.747, p < .001$, Nagelkerke $R^2 = .14$, and correctly classified 78.5% of the cases.

A second binary logistic regression analysis examined the relation between importance and difficulty as predictors and *action* as dependent variable⁹. The regression yielded no effect of importance on action (odds ratio = 1.06, $p = .55$) and a negative effect of difficulty on action, odds ratio = 0.49, $p < .001$. The overall model was significant, $\chi^2(2) = 104.509, p < .001$, Nagelkerke $R^2 = .14$, and correctly classified 65.7% of the cases. Thus, difficulty of retirement preparation predicted both intentions and actions in retirement preparation. Importance of retirement saving did predict intentions, but not predict actions in retirement preparation. These findings support the reasoning outlined in the introduction.

A linear regression analysis showed that importance had a negative effect on self-reported procrastination, $\beta = -.081, t(1168) = -3.005, p = .003$. Difficulty had a larger positive effect on self-reported procrastination, $\beta = .401, t(1168) = 14.956, p < .001$. Together, importance of retirement saving and difficulty of retirement preparation explained a significant amount of the variance in self-reported procrastination, $F(2, 1168) = 113.93, p < .001, R^2 = .163, R^2_{\text{Adjusted}} = .162$. Self-reported procrastination in retirement preparation was thus predicted by both importance of retirement saving and difficulty of retirement preparation. The standardized positive effect of difficulty was 5 times larger than the standardized negative effect of importance.

⁹ Note that participants in the not completed-no intention class are not included in this analysis.

Discussion

Policymakers generally assume that the importance of retirement saving is an important predictor of whether people prepare for retirement. We observed that this assumption does not seem to be supported by empirical evidence. Also, on the basis of the theory of planned behavior, action identification theory and self-construal theory, we expected that intentions to save would be based on considerations of importance, while actual retirement preparations would be based predominantly on considerations of difficulty, and to a lesser extent on considerations of importance. Initial analyses of two large surveys that were executed by third parties provided first support for the idea that both considerations do seem to play a role in people's self-reported procrastination but that the effect of difficulty is stronger than that of importance.

We then more directly examined the role of importance and difficulty in a survey administered by Nibud. Analyses revealed that whether people had the intention to prepare for retirement was related positively to importance of retirement saving and negatively to difficulty of retirement preparation. The pattern was different for likelihood of actually performing the action conditional on having the intention. Whether people take action in preparing for retirement was unrelated to importance of retirement saving but rather related negatively to difficulty of retirement preparation.

These findings may explain why many people delay retirement preparation, even if they understand and appreciate its long-term benefits (Choi et al., 2002; Gallup, 2015; Krijnen et al., 2016d; Nibud, 2015). The distinction between intentions and actions can also account for why tax advantages, employer contributions, and financial education attempts (Chetty et al., 2014; Fernandes et al., 2014) are less successful in promoting retirement preparation than, for instance, automatic enrolment and automatic escalation of contribution (Madrian & Shea, 2001; Thaler & Benartzi, 2004). Interventions that increase, explain, or emphasize the importance of retirement saving only affect intentions. Interventions that reduce the

necessary effort affect both intentions and behavior. Future research could directly compare the effectiveness of these two types of interventions.

In short, we find that, in the context of retirement preparation, the importance of retirement saving plays a role in predicting intentions but not in predicting action. Therefore, well-intended policies aimed at increasing awareness and perceived importance of retirement preparation may have no effect on behavior. The difficulty of retirement preparation does play a role in predicting actions, which explains why interventions aimed at simplifying retirement preparation appear to be more successful.

Chapter 4

Decision Importance as a Cue for Deferral

This chapter is based on: Krijnen, J. M. T., Zeelenberg, M., & Breugelmans, S. M. (2015). Decision importance as a cue for deferral. *Judgment and Decision Making, 10*, 407-415.

People often do not decide right away. Instead, they defer their decision to return to it at a later time. Think of a young couple delaying the decision to buy their first house. Or a child intending to buy a gift for its mother, but repeatedly walking out of stores empty-handed. Deferral can lead to better decisions by enabling a search for additional information or for better alternatives. However, deferral can also be risky. In the examples above, house prices might increase or gifts might be sold out. Another example – one that inspired our thinking on this topic – is the prevalent deferral of retirement saving decisions, which may negatively affect retirement income (Munnell, Golub-Sass, & Webb, 2011). People who postpone their commitment to a retirement plan or strategy create time to search for more information or better plans, but while they do so, they are not saving yet. Because deferral may be an important determinant of the outcomes of people’s decisions, it is valuable to know what causes people to defer a decision. Why are some decisions made right away, whereas others are deferred?

Research on the determinants of deferral has focused primarily on the composition of the choice set and the associated difficulty of choosing (Dhar, 1997; Tversky & Shafir, 1992a). People are more likely to defer a decision when they find it difficult to choose, which is particularly the case when the alternatives are close in attractiveness (i.e., when there is decisional conflict). In this article we examine another factor that may affect the likelihood of deferral – one that can be independent of the composition of the choice set and that is intrinsic to the decision itself. This factor is decision importance.

Decision importance can be defined as the potential impact of the decision on people’s life. A decision is more important when the topic it concerns is central to a person’s values or identity, or when its consequences have more impact compared to other decisions (Harris & Sutton, 1983). For example, choosing a partner is more important when it concerns serious dating instead of a night out, and choosing whether to enroll in a retirement plan is more important when it concerns a large percentage of retirement income compared to when it concerns a small percentage. A decision can be

important because its consequences reach far into the future, or a decision can be important because it affects many others and the decision-maker is accountable for the consequences. Yet, these different ways in which a decision can be important all refer to the potential impact of the decision on a person's life.

Interestingly, decision importance may be a double-edged sword. On the one hand, it can easily be argued that people come to better decisions when the outcomes are more important. Let us illustrate this intuition by returning to the example of retirement saving. Governments, retirement funds, and employers try to motivate people to start saving because people typically start too late. One strategy is to emphasize the importance of retirement saving, building on the assumption that this helps people to make better decisions. Policies like employer matching and tax benefits make enrollment in a retirement plan financially attractive and thus more important because of its greater impact on future income (Antolín, De Serres, & De la Maisonneuve, 2004). Financial education and marketing communication further emphasize the importance of retirement saving. For example, the U.S. Department of Labor says “Your employer’s retirement saving plan is an essential part of your future financial security. It is *important* [emphasis added] to understand how your plan works and what benefits you will receive.” (U.S. Department of Labor, Employee Benefits Security Administration, 2013, p. 1). In a similar vein, the U.S. governmental financial education website MyMoney.gov introduces the topic of saving and investing by saying “Saving is a key principle. People who make a habit of saving regularly, even saving small amounts, are well on their way to success. It’s *important* [emphasis added] to open a bank or credit union account so it will be simple and easy for you to save regularly.” (U.S. Department of the Treasury, Financial Literacy and Education Commission, n.d.).

Lay people share the intuition that emphasizing the importance of saving for retirement is a good idea. We presented a scenario to one hundred U.S. participants via Amazon Mechanical Turk ($M_{age} = 32.18$, 44% female) that described Rick, who owns a company and wants more of his employees

to enroll in the retirement plan he offers. Rick “organizes a meeting and invites a financial expert, who explains to all employees the importance of saving for retirement.” We asked participants: “Do you think that, after this meeting, Rick’s employees are (1) more likely to enroll in the retirement plan, (2) just as likely to enroll in the retirement plan as they were before, or (3) less likely to enroll in the retirement plan?” Seventy-five percent of the participants expected that employees would be more likely to enroll in a retirement plan after the importance of retirement was explained. None of the participants expected that emphasizing the importance of retirement saving would have a negative effect.

However, increasing or emphasizing the importance of a decision may actually have a negative side effect that has been relatively ignored until now. When making decisions, people trade off speed with accuracy. Investing more time and effort in decisions is anticipated to lead to more accurate decisions (Kleinmuntz & Schkade, 1993; Payne, Bettman, & Luce, 1996). This is also reflected in everyday expressions, for example with the advices to ‘think twice’ or to ‘sleep on it’ when making important decisions. However, this may cause people to postpone important decisions, precisely because they have high ambitions and want to invest more time and effort (O’Donoghue & Rabin, 1999). Based on this reasoning, we suspect that people use decision importance as a cue for deferral.

In this article, we set out to test whether an increase in decision importance *increases* deferral. It is of course true that people may have many different reasons to defer important decisions more than unimportant decisions, of which many have been studied before (e.g., Dhar, 1997; Tversky & Shafir, 1992a). For instance, important decisions often involve choosing from large, complex choice sets with conflicting alternatives. However, the rank-order of decisions in terms of importance can be independent of the choice set composition. A high-stake retirement saving decision may involve the same set of alternatives as a low-stake retirement saving decision.

People may also defer important decisions more than unimportant decisions because searching for information and alternatives, or maintaining the flexibility to switch, can be more beneficial for important than for unimportant decisions. People may even defer important decisions simply because deferral is free and can do no harm. Yet again, this is not necessarily the case. For some important decisions, such as a choice between retirement plans, deferral may turn out to be costly.

That is why we want to explore whether the effect of importance on deferral is independent of the composition of the choice set and occurs even when deferral does not provide more flexibility, bears a risk, has no material benefits, and has financial costs. Do people in fact defer an important decision not because of the characteristics of the choice set or because of the benefits of deferral, but simply because the decision is important?

Outline of the studies

We conducted seven experimental studies to examine whether decision importance increases a preference for deferral. All participants were U.S. residents, recruited and paid online via Amazon Mechanical Turk (“MTurk”). Participant samples from MTurk are more heterogeneous than for example college samples and provide decent quality data (see, Paolacci & Chandler, 2014). We used a screening procedure to make sure that participants never took part in more than one of the studies.

In all studies, participants indicated whether they would choose one of the alternatives, or whether they would defer the decision. This methodological feature is necessary to test our hypotheses, but we realize that explicitly presenting deferral as another option may affect the rate of deferral. This means that the absolute deferral rate may be higher than in situations where deferral is not explicitly mentioned. Because this effect is expected to be similar across conditions it cannot explain effects of the importance manipulation between conditions, which is the main focus of our studies.

After an initial demonstration that people prefer to defer important decisions more than unimportant decisions independent of choice set composition (Study 4.1), we tested whether this finding would hold when deferral does not provide more flexibility (Study 4.2), when deferral is potentially disadvantageous (Study 4.3), and when deferral has no material benefits and is financially costly (Study 4.4). In the second part of this article, we explore the boundaries of importance as a cue for deferral by testing whether the effect persists under different levels of choice conflict (Study 4.5 and 4.6), and in a situation where the choice set contains one dominant alternative (Study 4.7)¹⁰.

Study 4.1: Deferral of Important Decisions

Method

Two hundred MTurk workers ($M_{\text{age}} = 29.18$, $SD = 8.68$, 35.5% female) completed a survey and received \$0.10. Participants were randomly assigned to an 80% or a 3% condition. On the first page, they read the following:

Imagine that you receive a letter from your employer. There are some attractive possibilities to save more for your retirement. On the next page you are going to make a decision about the available retirement plans. This decision will affect about 80% [3%] of your income during retirement.

To make sure that participants had read the relevant information, they could proceed only after correctly answering the question “what percentage of your retirement income could be affected by this decision?”. Those who answered incorrectly were again prompted with the scenario and the question until they answered correctly. Participants then indicated to what extent they agreed with three statements about the decision on a slider scale ranging from *strongly disagree* (0) to *strongly agree* (100). They responded to “the decision is

¹⁰ See online supplement for all materials used in the studies.

important”, “the decision will be easy”, and “the decision will be difficult”. The ratings for ease (reverse-scored) and difficulty were combined into a single measure of decision difficulty, $r(198) = .77$. The expectation was that participants would anticipate the decision to be more important and more difficult when it concerned a larger percentage of their income during retirement. On the next page, participants read about the decision:

The letter from your employer describes the most popular retirement plan. This plan, Plan A, is relatively stable and seems to fit your needs. There are many other possible plans; information about these can be found on a website. Remember that the result of this decision will determine about 80% [3%] of your retirement income. You could now either choose to participate in Plan A by checking a box and returning the letter, or you could look for more information on a website and decide later. What would you do in this situation?

This decision to participate in Plan A or defer and search for other alternatives (adopted from Tversky & Shafir, 1992a) was our main dependent variable.

Results & Discussion

Participants in the 80% condition rated the decision as significantly more important ($M = 90.20$, $SD = 13.71$) than participants in the 3% condition ($M = 68.28$, $SD = 25.69$), $t(198) = -7.53$, $p < .001$, $d = 1.06$. Participants would defer the decision more often in the 80% condition (87%) than in the 3% condition (69%), $\chi^2(1, N = 200) = 9.44$, $p = .002$, $\varphi = .22$. Across condition, decision importance and decision difficulty were positively correlated, $r(198) = .50$, $p < .001$. Participants in the 80% condition expected the decision to be more difficult ($M = 71.54$, $SD = 18.19$) than participants in the 3% condition ($M = 49.58$, $SD = 23.40$), $t(198) = -7.41$, $p < .001$, $d = 1.05$.

People defer important decisions more than unimportant decisions, even when the choice set is the same in both situations. This finding is

consistent with the idea that people use decision importance as a cue for deferral.

Study 4.2: Flexibility and Deferral

Deferring decisions simply because they are important can be advantageous when one uses the extra time to gather relevant information or to search for additional alternatives, and this effect is largest for important decisions. In other words, deferral often has the advantage of flexibility. However, sometimes a decision-maker retains this flexibility to search for better options, even after choosing one alternative. There are two possibilities as to what would happen in situations where this is the case. On the one hand, if people defer important decisions more because deferral provides the flexibility to find more information and better alternatives, we would expect them to not do so when this flexibility is the same after committing to one alternative. On the other hand, if people use importance as a cue for deferral, we would expect them to defer important decisions more, regardless of whether deferral provides more flexibility or not.

We provided participants with the scenario of Study 4.1, except this time we explicitly stated that participants could “switch plans or quit at any time.” This detail is crucial, in that it now made little sense to defer for the sake of keeping other possible alternatives available. In fact, participants always had the same possibilities to switch or quit, regardless of whether they enrolled or deferred. Deferral thus provided the same flexibility as choosing right away. One could even argue that deferral was sub-optimal, because participants would be saving less if they would defer than if they would choose Plan A right away. In the worst case, enrolling in Plan A would be a ‘quick fix’ until the participant would find the perfect retirement plan. If participants would defer the important decision more than the unimportant decision, even in this situation, then this would support the notion of people using importance as a cue for deferral.

Method

Three hundred and two MTurk workers ($M_{\text{age}} = 31.75$, $SD = 9.45$, 39.4% female) completed the survey and received \$0.15. Participants were randomly assigned to the 80% or 3% conditions of Study 4.1. We added the sentence: “You can switch between plans or quit at any time”. To make sure that participants had read the relevant information, they could proceed only after correctly answering the questions “what percentage of your retirement income could be affected by this decision?” and “will you be able to switch between plans or quit at any time?”. Those who answered incorrectly were again prompted with the scenario and the question until they answered correctly. The rest was identical to Study 4.1.

Results & Discussion

Participants in the 80% condition rated the decision as significantly more important ($M = 89.19$, $SD = 15.43$) than participants in the 3% condition ($M = 77.70$, $SD = 18.79$), $t(300) = -5.80$, $p < .001$, $d = 0.67$. Participants also deferred the decision more often in the 80% condition (79.3%) than in the 3% condition (65.1%), $\chi^2(1, N = 302) = 7.58$, $p = .006$, $\varphi = .16$. Across condition, the two-item measure of decision difficulty, $r(300) = .84$, and decision importance were correlated, $r(300) = .41$, $p < .001$. Participants in the 80% condition expected the decision to be more difficult ($M = 67.49$, $SD = 21.65$) than participants in the 3% condition ($M = 54.90$, $SD = 22.76$), $t(300) = -4.92$, $p < .001$, $d = 0.57$.

As in Study 4.1, participants in Study 4.2 indicated that they would defer the important decision more than the unimportant decision. This time, however, deferral could not be explained by retention of flexibility, because switching or quitting was possible at any time, both after deferral and after immediate enrollment. A test comparing the observed frequencies of deferral and choice in Study 4.1 and 4.2 with the frequencies that would be expected if the results in both studies were the same is not significant, $\chi^2(2) = 2.84$, $p = .242$. The results of Study 4.1 and 4.2 are thus not different, meaning that the

effect of importance on deferral is unaffected by the retention of flexibility after choice.

Study 4.3: Risky Deferral

In many situations, deferral bears a risk. The consequences of choosing an alternative might change or alternatives might become unavailable over time. A clear example is the deferral of retirement saving decisions, which may negatively affect retirement income, as was the case in Study 4.2. Other instances are the reluctance to decide when buying a house, which can be costly in a tight market where houses sell quickly and house prices increase across the board, postponing going to the doctor while one's condition worsens, or pushing forward the decision to have children, which increases the likelihood of infertility and birth defects. In some situations it may be unclear that deferral bears a risk, whereas in other situations people are well aware of this risk. In Study 4.3, we employed a consumer setting – the purchase of a laptop – to test if people would defer important decisions, even when it is clear that deferral has potential disadvantages, such as stock out.

This time we manipulated decision importance indirectly by stating that the purchase was either irreversible or reversible. We expected that participants would perceive the irreversible purchase as more important than the reversible purchase (Sela & Berger, 2012; Schrift, Netzer, & Kivetz, 2011), and that they would thus defer the irreversible decision more than the reversible decision.

We also adopted Dhar's 'learning phase' (1997) to rule out one possible explanation for the deferral of important decisions. In previous studies, participants could have been expecting to find more or better alternatives after deferring when the decision was important than when the decision was unimportant. Because now all participants reviewed all available alternatives before making the decision, a difference in expectations about

the remaining alternatives would not explain an effect of purchase reversibility on preference for deferral.

Method

Three hundred and five MTurk workers ($M_{\text{age}} = 29.42$, $SD = 9.12$, 31.8% female) participated and received \$0.15 in return. Participants were randomly assigned to either the irreversible or reversible condition. Participants read: “Imagine that you are planning to buy a laptop. The alternatives you are considering are all on a special sale at a chain of stores in your city. They all cost \$850, which you think is a good price.” Participants in the irreversible condition then read: “The store does not offer the option to return your laptop; once you buy a laptop, the purchase is irreversible.” Participants in the reversible condition instead read: “The store offers a special 6-month try-out period. Within this period, if you are not satisfied with your initial choice you are allowed to return it and choose another one.” Participants were then shown a list of all five available laptops under consideration. They were asked to review the list carefully and to make sure that they were familiar with the characteristics. Laptops were described by weight, internal memory, hard drive storage space, and battery life (e.g., Laptop A: 3.0 lbs, 4 GB internal memory, 320 GB hard drive, 8 hours battery life). Similar to the previous studies, we checked whether participants read the scenario by asking: “Will you be able to return the chosen laptop if you do not like it?” Those who answered incorrectly were again prompted with the scenario and the question until they answered correctly. Participants also rated how important the decision would be on a slider scale ranging from 0 (*not important at all*) to 100 (*very important*).

On the next page, participants read that the first store they visited only offered two of the five laptops. All participants saw the same two alternatives, Laptops B and C, including their characteristics. It was said that if they would decide not to purchase one of these alternatives right away, they may not be available later. As our main dependent variable, we asked what they would do in this situation. They could choose either Laptop B or C, or

they could choose to “go to another store and look for one of the other alternatives”.

Results & Discussion

Participants in the irreversible condition rated the decision as more important ($M = 76.71$, $SD = 25.49$) than those in the reversible condition ($M = 70.03$, $SD = 26.01$), $t(303) = -2.27$, $p = .024$, $d = 0.26$. Participants would also defer more in the irreversible (32.7%) than the reversible condition (21.1%), $\chi^2(1, N = 305) = 5.24$, $p = .022$, $\psi = .13$. Thus, the results of Study 4.3 replicate those of Study 4.1 and 4.2, even though the manipulation in Study 4.3 seems to have had a weaker effect on the decision importance rating than the previous manipulations.

We draw two conclusions from this study. First, because all participants read the same list of alternatives that could become available in case of deferral, the deferral of important decisions cannot be attributed to a difference in expectations. Second, people defer decisions even when it is clear that deferral is potentially disadvantageous.

Study 4.4: Costly Deferral

Study 4.4 takes the idea of importance as a cue for deferral one step further, and creates a situation where deferral has no material benefits because it cannot produce more information. Also, we manipulated the financial costs of deferral, such that in two of the four conditions deferral was not only non-instrumental, but also financially costly. If people use importance as a cue for deferral, we would expect participants to defer important decisions when deferral has no material benefits and even when it has a financial cost.

Method

A total of 323 MTurk workers ($M_{\text{age}} = 28.82$, $SD = 8.10$, 35.3% female) participated in return for \$0.20. Participants were randomly assigned

to one of the conditions of the 2 (career impact: large impact vs. small impact) × 2 (deferral costs: \$20 vs. no costs) between-participants design. Participants in the large impact [small impact] conditions read the following scenario:

Your employer offers you the opportunity to enroll in a 'career development course'. Participating in such a course will improve your professional skills and will provide you with expertise and experience relevant to your career. You want to participate in one of the courses. However, you know that the choice between courses is extremely [not very] important for your career. This decision has a huge [almost no impact] on your future. Below are the three available courses with all the relevant pros and cons. There are no other options and you know that there is no other information available. All three courses start in twelve months. You can either decide right away and enroll in one of these three courses immediately, or you can wait and enroll in one of these courses next month.

We manipulated deferral costs, by adding the sentence “only if you enroll immediately, you will get a \$20 discount.” in the \$20 conditions. We then described the alternatives by listing two pros and two cons for each of the three courses. As the dependent variable, participants indicated whether they would either immediately enroll in Course A, Course B, Course C, or whether they would wait and make their decision next month.

On a next page participants responded to eight statements about the decision between the three courses on a slider scale ranging from *strongly disagree* (0) to *strongly agree* (100). The first two statements were asked to check whether decisions differed in the way that we set out to: “the decision between courses is important” and “waiting until next month (instead of choosing immediately) has disadvantages.” The other six statements were asked for exploratory purposes and tapped into the decision difficulty (“the decision between courses is difficult”), anticipated regret (“I am afraid I will regret my decision later”), aspiration level (“I want to be completely certain

about which course I like most before making the decision”), benefits of deferral (“waiting one month will lead to a better decision”), similarity (“all three courses seemed similar to me”), and equality in attractiveness (“all three courses seemed equally attractive to me”).

Results & Discussion

A career impact \times deferral costs ANOVA yielded a main effect of career impact on decision importance, $F(1, 319) = 48.965, p < .001, \eta_p^2 = .13$. Choosing a course was perceived as more important in the large impact conditions ($M = 78.45, SD = 16.11$) than in the small impact conditions ($M = 60.73, SD = 27.77$). There was no main effect of deferral costs, $F(1, 319) = 0.046, p = .830$, and no interaction effect, $F(1, 319) = 1.01, p = .316$.

Another career impact \times deferral costs ANOVA tested the effect on the perceived disadvantages of deferral. The analyses yielded a significant main effect of deferral costs, $F(1, 319) = 20.685, p < .001, \eta_p^2 = .06$. Deferral was perceived as having more disadvantages in the \$20 conditions ($M = 68.49, SD = 25.78$) than in the no costs conditions ($M = 55.12, SD = 26.95$). The ANOVA indicated no main effect of career impact, $F(1, 319) = 0.033, p = .86$, and no interaction effect, $F(1, 319) = 0.756, p = .385$.

A logistic regression tested how the two experimental manipulations (career impact and deferral costs, without the interaction term¹¹) affected the preference for deferral. Career impact had a significant effect on deferral, odds ratio = 2.23, $p = .007$. In the small impact conditions 13% of participants deferred, whereas in the large impact conditions 24.8% of participants did so. Deferral costs had no effect on the likelihood of deferring, odds ratio = 0.74, $p = .298$. See Table 1 for the distribution of participants' decisions per condition.

Decision importance was positively correlated with decision difficulty, $r(323) = .22, p < .001$, and aspiration level, $r(323) = .21, p < .001$.

¹¹ A test including the interaction term showed no significant interaction effect.

Participants who rated the decision as more important found it more difficult and wanted to be more certain before making a decision.

The pattern of results is consistent with the hypothesis that people defer important decisions more than unimportant decisions, regardless of whether deferral bears financial costs. The findings exclude the possibility that people simply defer important decisions when deferral can do no harm. We see that people would defer important decisions more than unimportant decisions, even in situations where deferral does not provide more flexibility (Study 4.2), where deferral itself has potential disadvantages (Study 4.3), and where deferral cannot lead to additional information and is financially costly (Study 4.4).

Table 1

Number of participants deferring per condition as a proportion of the total number of participants per condition for Study 4.4. The percentage of participants deferring in each condition is in parentheses.

Career impact condition	Deferral costs condition		Total
	No costs	\$20	
Small impact	12 / 81 (14.8%)	9 / 81 (11.1%)	21 / 162 (13.0%)
Large impact	22 / 80 (27.5%)	18 / 81 (22.2%)	40 / 161 (24.8%)
Total	34 / 161 (21.1%)	27 / 162 (16.7%)	61 / 323 (18.9%)

Study 4.5: Deferral and Conflict

The findings reported above suggest that people may use decision importance as a cue for deferral. We now turn to the question of how the use of decision importance as a cue for deferral relates to previous work on choice conflict and deferral (Dhar, 1997; Tversky & Shafir, 1992a). Is the deferral of important decisions independent from the possible effects of choice set composition? Study 4.5 and 4.6 explored this question and are nearly identical; we manipulated both decision importance and choice set composition, by presenting either one alternative or two conflicting alternatives. Our goal was to see whether people would defer important decisions more than unimportant decisions, regardless of whether the choice set consists of one alternative, or of two conflicting alternatives.

Method

A total of 603 MTurk workers ($M_{\text{age}} = 27.52$, $SD = 8.30$, 29.4% female) participated in in return for \$0.10. Participants were randomly assigned to one of the conditions of the 2 (choice set: 1 alternative vs. 2 alternatives) \times 2 (renting period: 2 years vs. 2 months) between-participants design. Participants read: “Imagine that you are looking for an apartment to rent for a period of two years [two months]. On the next page you are going to make a decision about an available apartment.” We asked the following instruction attention check: “According to the situation, for how long are you going to rent the apartment?”. Those who answered incorrectly were again prompted with the scenario and the question until they answered correctly. Participants rated the importance of the decision (“How important is this decision regarding your new apartment?”) on a slider scale ranging from *not at all important* (0) to *very important* (100).

On a next page, participants in the 1 alternative conditions read:

A website offers an apartment that fits your needs and is immediately available for a two-year [two-month] rent period. The apartment costs

\$780 per month, which you think is a very good price. What would you do in this situation?

Participants in the 2 alternatives conditions read:

A website offers two apartments that fit your needs and are immediately available for a two-year [two-month] rent period. One apartment costs \$780 per month. The other is slightly better located and costs \$820 per month. You think both are very good prices. What would you do in this situation?

Participants indicated whether they would rent the \$780 apartment (available in all conditions), rent the slightly better located \$820 apartment (available in the 2 alternatives conditions), or wait until they would learn more about various other alternatives.

Results & Discussion

An ANOVA yielded a significant main effect of renting period on decision importance, $F(1, 599) = 80.720, p < .001, \eta_p^2 = .12$. Choosing an apartment was perceived as more important in the 2 years conditions ($M = 87.43, SD = 13.31$) than in the 2 months conditions ($M = 73.73, SD = 22.85$). The main effect of choice set, $F(1, 599) = 2.345, p = .126$, and the interaction, $F(1, 599) = 0.155, p = .693$, were not significant.

We conducted a logistic regression to explore how the manipulations (choice set, renting period, without the interaction term¹²) affected the likelihood of deferral (coded 0 for participants who chose either one of the apartments and 1 for those who deferred). Renting period affected the likelihood of deferring, odds ratio = 2.05, $p < .001$. In the 2 months conditions 49.2% of participants would defer, whereas in the 2 years conditions 65.7% of participants would do so. Choice set also had a significant effect on deferral, odds ratio = 0.41, $p < .001$. In the 1 alternative

¹² A test including the interaction term showed no significant interaction effect.

conditions 67.9% of participants would defer, whereas in the 2 alternative conditions 46.8% of participants would do so. See Table 2 for the distribution of participants' decisions per condition.

Study 4.6: Deferral and Conflict II

This study is an almost direct replication of Study 4.5. The only difference was that the price of the added alternative in the 2 alternatives conditions was changed from \$820 to \$840 (based on pilot testing) to create a more conflicting choice set. Six hundred and seven MTurk workers ($M_{\text{age}} = 27.23$, $SD = 8.45$, 32.5% female) participated in return for \$0.10.

Participants in the 2 years conditions rated the decision between apartments as significantly more important ($M = 85.65$, $SD = 15.26$) than those in the 2 months conditions ($M = 75.34$, $SD = 21.33$), $F(1, 603) = 46.887$, $p < .001$, $\eta_p^2 = .07$. There was again no main effect of choice set, $F(1, 603) = 0.019$, $p = .892$, and no interaction, $F(1, 603) = 0.055$, $p = .815$.

A logistic regression¹³ again showed a significant effect of renting period on decision deferral, odds ratio = 1.91, $p < .001$. In the 2 months conditions 54.0% of participants would defer, whereas in the 2 years conditions 68.7% of participants would do so. There was again a main effect of the choice set size, odds ratio = 0.585, $p = .002$. See Table 2 for the distribution of participants' decisions per condition.

Study 4.5 and 4.6 thus found that people would defer decisions based on the importance of the decision, regardless of whether the choice set consisted of only one alternative, or of two conflicting alternatives. The final study explored if people would defer important decisions even when a clearly dominant alternative is available. In other words, is decision importance used

¹³ Similar to Study 4.5, we omitted the interaction term. A test including the interaction term showed no significant interaction effect.

as a cue for deferral, even when there is little to no ambiguity about the time and effort actually needed to come to a good decision?

Table 2

Number of participants deferring per condition as a proportion of the total number of participants per condition for Study 4.5 and 4.6. The percentage of participants deferring in each condition is in parentheses.

Renting period condition	Study 4.5		Study 4.6	
	Choice set condition		Choice set condition	
	1 alternative	2 alternatives	1 alternative	2 alternatives
2 months	88 / 152 (57.9%)	61 / 151 (40.4%)	88 / 154 (57.1%)	74 / 146 (50.7%)
2 years	117 / 150 (78.0%)	80 / 150 (53.3%)	119 / 153 (77.8%)	92 / 154 (59.7%)

Study 4.7: Deferral with a Dominant Alternative

Method

Three hundred MTurk workers ($M_{\text{age}} = 28.75$, $SD = 10.23$, 45.7% female) participated in return for \$0.10. Participants were randomly assigned to either the 2 years or the 2 months condition. They responded to a scenario similar to the corresponding 2 alternatives conditions in Study 4.5 and 4.6, with the only difference being the description of the two available apartments: apartment A cost \$820 per month, and apartment B cost \$780 per month and was slightly better located. Apartment B thus dominated apartment A on both price and location.

Results & Discussion

Choosing an apartment for a 2-month period was seen as less important ($M = 76.24$, $SD = 21.58$) than choosing one for a 2-year period ($M = 85.60$, $SD = 14.91$), $t(298) = -4.37$, $p < .001$, $d = 0.50$. Only three out of 300 participants chose the dominated apartment A. The rest chose either apartment B or deferred their choice. Deferral did not differ between the 2 months (40%) and the 2 years condition (46%), $\chi^2(1, N = 300) = 1.10$, $p = .294$.

These results indicate a first boundary condition to the role of decision importance as a cue for deferral. When people face a choice set containing a dominant alternative – one that is better than the other alternative on all dimensions – importance does not significantly affect deferral. Decision importance is used as a cue for deferral, but only when the decision-maker is ambiguous about how much time and effort is needed to come to a good decision.

General Discussion

People prefer to defer important decisions, more so than unimportant decisions. This finding seems robust across domains (i.e.,

pension plans, laptops, career courses, and apartments) and across manipulations of importance (i.e., impact on retirement income, reversibility of laptop purchase, impact on career, and renting period of apartment). Deferral of important decisions was independent of choice set composition and of whether deferral provides more flexibility, bears a risk, is without material benefits, or is financially costly. We also found that people would defer important decisions more in situations where there is a single alternative available or where there are two conflicting alternatives. A final study showed that decision importance did not increase deferral when there was a clearly dominant option.

Taken together, these results point to the idea that people use decision importance as a cue for deferral. People infer the time and effort that should be invested in a decision from the perceived importance of the decision, and this seems to cause them to defer important decisions. We would like to stress that deferral of decisions on the basis of importance, may be one of many reasons that could cause deferral. In other cases, people may defer important decisions because they involve complex choice sets with conflicting alternatives (Dhar, 1997; Tversky & Shafir, 1992a) or because deferral provides more flexibility and leads to more information or better alternatives (Ratchford, 1982; Shin & Ariely, 2004). Interestingly, however, these reasons cannot explain the current findings. We thus conclude that sometimes people appear to defer decisions *simply because they are important*.

This interpretation of importance as a cue fits with work on the use of heuristics in decision-making. When using heuristics, people simplify complex situations by assessing only part of the information and responding in a more or less fixed way (Gigerenzer & Gaissmaier, 2011; Tversky & Kahneman, 1974). Cialdini (2007) refers to these patterns of behavior as ‘click, whirr’; a specific feature of the situation (“click”) sets in motion a specific behavioral response (“whirr”), even when once in a while this response may not be optimal.

The notion that people use decision importance as a cue for deferral is also in line with previous research on decision difficulty. Beattie and Barlas (2001) found that perceptions of decision difficulty were closely related to the combined importance of the attributes under consideration. More recent studies by Sela and Berger (2012) have shown that people infer a sense of importance from perceptions of decision difficulty. Based on this inference, people were willing to invest even more time and effort into making a decision that felt difficult. Decisions that were objectively equally important thus became subjectively more important through the perception of difficulty. In our studies, we found a similar effect in the reverse direction: decisions that are objectively equally difficult can become subjectively more or less difficult through the perception of importance. Together, these studies and our current findings demonstrate a close link between perceptions of decision importance and perceptions of decision difficulty. People assume difficult decisions to be important and important decisions to be difficult.

We think that our findings also have implications for how to decrease the rate of deferral. People are less likely to defer when decisions are perceived as less important. One way to do this is by making the decision reversible. Thaler and Benartzi's (2004) Save More TomorrowTM saving plan emphasized that all saving decisions could be changed at any time, which led to higher participation rates and more saving (together with other aspects of the plan's design). Retailers employ a similar strategy: by providing a full money back guarantee, they lower the consumer's perception of the consequences of making a mistake (Davis, Gerstner, & Hagerty, 1995), which in turn increases the intention to buy and the willingness to pay (e.g., Suwelack, Hogreve, & Hoyer, 2011). For decisions that are reversible, such as choosing whether to be an organ donor or not, the reversibility could be emphasized with the aim of encouraging people to make a decision earlier. Based on the current findings, we expect such an emphasis on reversibility to be more effective than an emphasis on the importance of the decision.

We want to stress that the use of importance as a cue for deferral is not maladaptive or irrational. It makes sense to take more time and invest

more effort in important decisions than in unimportant decisions. Moreover, selecting a decision strategy based on a single cue is simple and fast – it does not require extensive evaluation of the decision problem and its dynamics – which is another reason why it may be effective. However, using importance as a cue for deferral may occasionally cause people to defer important decisions where there is no real benefit in doing so and it would thus be better to choose right away.

This brings us back to the deferral of retirement saving decisions, where strategies to motivate people to enroll in retirement plans often entail emphasizing the importance of saving for retirement (through financial benefits, financial education, and marketing communication). As we have seen, the intuitions of lay people are in line with those of the retirement industry; they think that emphasizing importance makes people more likely to enroll in a retirement plan, and if not, that it will certainly do no harm. But the present studies have shown that it can do harm. Making decisions important may backfire by causing more deferral, and thus make people less likely to enroll in a retirement plan.

Chapter 5

Inaction Inertia in Retirement Saving

Many people do not take full advantage of attractive opportunities to save for retirement. In the United States, a great share of eligible employees are not enrolled in tax-advantaged retirement plans (e.g., 401(k)'s and IRA's), or contribute only a small proportion of their income (Choi, Laibson, & Madrian, 2011; Helman, Copeland, & VanDerhei, 2015; Munnell & Sundén, 2006; Rhee, 2013). The problem of inertia in retirement saving is not unique to the United States. Enrollment rates in countries with voluntary retirement saving schemes are generally lower than expected (Van Els, Van Rooij, & Schuit, 2007). In fact, inertia may even affect people's retirement saving when plan enrollment is mandatory. For instance, with the introduction of a new pension scheme in Sweden, a disproportionately large share of employees stayed in the default fund instead of moving to more attractive alternatives (Hedesström, Svedsäter, & Gärling, 2004). What can explain this widespread and pervasive retirement saving inertia? Why are so many people not taking action to save (more) for retirement, even when there are attractive opportunities to do so?

We studied the role of missed opportunities in retirement saving inertia. Specifically, we examined whether and when having missed an opportunity to save for retirement decreases people's likelihood to act on a subsequent opportunity. Consider a person who has the opportunity to enroll in an attractive 401(k) plan. Would his or her likelihood to enroll in the plan be affected by information about having missed a similar opportunity 10 years ago?

From a rational perspective, missed opportunities should be irrelevant to people's evaluation of, and likelihood to act on current opportunities. Research has shown that people do not always adhere to this normative logic (e.g., Tykocinski, Pittman, & Tuttle, 1995; Tykocinski & Pittman, 1998). People are less likely to act on an attractive opportunity after having previously missed a much better opportunity to do so. This tendency has been labeled inaction inertia – continued inertia induced by previous inaction (Tykocinski et al., 1995). Inaction inertia effects have been demonstrated in scenarios about signing up for a fitness center, buying beer,

enrolling in a university course, buying a ski pass, and betting on horse racing (Arkes, Kung, & Hutzler, 2002; Tykocinski et al., 1995; Tykocinski & Pittman, 1998; Zeelenberg, Nijstad, Van Putten, & Van Dijk, 2006). Inaction inertia has been linked to temporary dips in product sales after a promotion (Zeelenberg & Van Putten, 2005), to failures and deadlocks in international negotiations (Terris & Tykocinski, 2016) and to investors' reluctance to leave a bear market (Tykocinski, Israel, & Pittman, 2004). For recent reviews of the inaction inertia literature, see Tykocinski and Ortmann (2011), Van Putten, Zeelenberg, Van Dijk, and Tykocinski (2013) and Van Putten, Zeelenberg, and Van Dijk (2013).

Until now, research on inaction inertia has examined situations where an aspect of the opportunity changes abruptly (e.g., a discount that ends). We suspect that in the context of retirement saving, inaction inertia can occur without such an abrupt change. Retirement saving decisions are in essence a series of gradually worsening opportunities. Keeping everything else constant, starting to save for retirement at age 25 leads to substantially more retirement wealth than doing so at age 26. Hence, accumulating retirement wealth is cheapest if one starts saving as early in life as possible (Munnell, Golub-Sass, & Webb, 2011). Research has shown that many people fail to appreciate the value of starting to save early (Eisenstein & Hoch, 2007; Krijnen, Breugelmans, & Zeelenberg, 2016a; McKenzie & Liersch, 2011; Stango & Zinman, 2009). Intriguingly, if we follow the logic of the inaction inertia literature, missing an opportunity to save could decrease a person's likelihood to act on subsequent opportunities, simply because of the realization that saving prospects have gradually worsened. To put this differently, in retirement saving inaction inertia might be the result of the mere passing of time.

Independent of gradual changes, inaction inertia in retirement saving might also be the result of an abrupt change in the saving opportunity. The prospected return of enrollment in a retirement plan can fluctuate over time, just as the price of a six-pack of beers in the local supermarket can fluctuate over time. Take the annualized S&P500 return (dividends reinvested and

inflation adjusted) as a proxy for the return on a retirement investment. Between January 1995 and January 2005, return would have been 8.96%. If one had waited 10 years and invested between January 2005 and January 2015, return would have been -3% (see <https://dqydj.com/sp-500-return-calculator/>). Missing the opportunity to enroll in a retirement plan when prospected returns are high may decrease the likelihood of enrollment once the prospected returns are lower.

Would missing a good opportunity to enroll in retirement plan *always* decrease the likelihood that people act on subsequent opportunities? We think the answer is no. We expect that the inaction inertia effect in retirement saving will be smaller or completely absent if people's attention is focused on present or future outcome instead of on contributions.

Such a moderating effect of outcome (vs. contribution) focus would be in line with previous research. Tykocinski et al., (1995) found that inaction inertia did not occur when the opportunity was framed as a gain instead of as a loss (Tykocinski et al., 1995). Later research demonstrated that inaction inertia is weaker when the attractiveness of the missed opportunity is emphasized (see Van Putten, Zeelenberg, & Van Dijk, 2013) and when the present opportunity is decoupled from the missed opportunity (Van Putten, Zeelenberg, & Van Dijk, 2007). Furthermore, inaction inertia was found to be stronger when people were asked to think about multiple options they missed in the past, but weaker when they are asked to think about multiple options being present now (Van Putten, Zeelenberg, & Van Dijk, 2008). Finally, inaction inertia was found to be weaker in the decisions of people who focus on present opportunities for improvement (i.e., an action oriented mindset) than in the decisions of people who dwell on the past (i.e., a state oriented mindset), both when this orientation was manipulated and when it was measured (Van Putten, Zeelenberg, & Van Dijk, 2009). Thus, a focus on the loss of missing the past opportunity seems to be associated with more inaction inertia, whereas a focus on the opportunities for improvement in the present or future seems to attenuate the effect.

The remainder of this article consists of two parts. In the first part, we present two studies that examined the occurrence of inaction inertia in retirement saving by passing of time (Study 5.1) and by a change in annual return (Study 5.2). In the second part, we present three studies (Studies 5.3a-c) that explored the moderating role of focusing on outcome vs. contribution. This exploration is of particular use in the search for interventions aimed to reduce retirement saving inertia.

For all studies, we recruited participants through Amazon's online crowdsourcing marketplace Mechanical Turk ('MTurk'). Only MTurk 'workers' who registered as Canadian or U.S. citizen were eligible for participation. In addition, we used a screening procedure based on participants' MTurk ID to ensure that people could not take part in more than one study. We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the studies.

Study 5.1: Inaction Inertia Caused by the Passing of Time

We suspect that, in the context of retirement saving, the mere passing of time may cause inaction inertia. Saving for retirement is relatively easy (i.e., cheap) if one starts early on in life but becomes more difficult (i.e., expensive) the longer one waits. Hence, the difference in attractiveness between a focal and missed opportunity increases as the temporal distance between the two increases. A distant past opportunity to save for retirement is much more attractive; A recent past opportunity to save retirement is only slightly more attractive.

In Study 5.1, we tested if participants would be less likely to enroll in an attractive retirement plan when reminded of a distant past (and thus much more attractive) opportunity, compared to when reminded of a recent past (and thus slightly more attractive) opportunity.

Method

One hundred and eighty participants (28.9% female, $M_{age} = 31.56$, $SD_{age} = 10.57$) were randomly assigned to a 10 year condition or a 1 year condition¹⁴. Participants in the 10 year [1 year] condition were asked to imagine the following scenario:

Ten years [One year] ago, when you started working for Company A, you were offered the possibility to enroll in the company's retirement plan. In a letter about the plan, it said: 'If you put in \$250 [\$450] each month, you will be able to live comfortably during retirement.'

To make sure participants had read the scenario carefully, we asked "Ten years [One year] ago, how much money did you have to put in each month to live comfortably during retirement?" In both conditions, the possible answers were \$450 and \$250. Participants could proceed to the next page only after correctly answering this question. In case of an incorrect answer, they were prompted with the question again until the answer was correct.

On the next page, participants read:

The past 10 years [The past year] you repeatedly considered enrolling but you never got around to doing it. This week, you receive another letter about the possibility to enroll in the retirement plan. The letter says: 'If you had enrolled 10 years ago [1 year ago], you would have put in \$250 [\$450] per month. To accumulate the same wealth you would now have to put in \$500 each month.'

As dependent variable, we asked "Given that you would now have to put in \$500 each month, how likely is it that you would enroll in the retirement plan this year?" Participants answered on a rating scale ranging

¹⁴ We aimed to recruit 180 participants, based on a power analysis for a *t*-test (effect size $d = 0.5$, power $1 - \beta = .9$, required $N = 172$).

from 1 (“very unlikely”) to 7 (“very likely”).

Results & Discussion

The results reveal inaction inertia in retirement decisions. Participants in the 10 year condition were less likely to enroll in the retirement plan ($M = 3.94$, $SD = 1.69$) than participants in the 1 year condition ($M = 4.92$, $SD = 1.38$), $t(178) = 4.26$, $p < .001$, Cohen’s $d = 0.64$.

People are less likely to enroll in a retirement plan when reminded of missing an opportunity ten years ago than when reminded of missing an opportunity one year ago. Inaction inertia in retirement saving can thus be the result of the mere passing of time. This implies that retirement saving can serve as a naturalistic setting where people fall prey to a cycle of inertia. The longer one’s history of retirement saving inaction, the smaller the likelihood that one acts on subsequent attractive opportunities to start saving.

Study 5.2: Inaction Inertia Caused by a Change in Annual Return

Study 5.2 examines whether inaction inertia may also occur in retirement saving when the return on a retirement plan changes between opportunities. Thus, this study serves as an attempt to conceptually replicate previous research on inaction inertia through an abrupt change in the opportunity.

Method

One hundred and eighty participants (42.8% female, $M_{age} = 31.46$, $SD_{age} = 9.34$) were randomly assigned to a large difference condition or a small difference condition¹⁵. Participants in the large difference [small

¹⁵ We aimed to recruit 180 participants, based on a power analysis for a t -test (effect size $d = 0.5$, power $1-\beta = .9$, required $N = 172$).

difference] condition were asked to imagine the following scenario:

You work for Company A. When you started working for this company five years ago, you were offered the opportunity to enroll in their retirement plan. The plan offered a fixed annual return of 9% [4%] for the next 15 years. You thought that this was an attractive opportunity, but by the time you responded, the offer had expired.

To make sure participants had read the scenario carefully, we asked: “If you would have enrolled in the retirement plan five years ago, what would have been your fixed annual return?” In both conditions, the possible answers were 4% and 9%. Participants could proceed to the next page only after correctly answering this question. In case of an incorrect answer, they were prompted with the question again until the answer was correct.

On the next page, participants read: “Now, five years later, you receive another letter about the retirement plan. If you enroll now, your fixed annual return would be lower: 3% for the next 15 years.” As dependent variable, we asked “How likely is it that you would enroll in the retirement plan with the 3% fixed annual return?” (1 = “very unlikely”; 7 = “very likely”).

Results & Discussion

The results again reveal inaction inertia in retirement saving decisions. Participants in the large difference condition were less likely to enroll in the retirement plan ($M = 3.59$, $SD = 1.54$) than participants in the small difference condition ($M = 4.61$, $SD = 1.58$), $t(178) = 4.39$, $p < .001$, *Cohen's d* = 0.65.

This study demonstrates that inaction inertia can occur in a retirement saving context, not only by the passing of time but also as result of a change in annual return. People are less likely to enroll in a retirement plan after missing an opportunity that was much better than after missing an opportunity that was only slightly better.

Study 5.3a-c: Outcome Focus as a Moderator of Inaction Inertia

In Study 5.1 and Study 5.2, opportunities were described in terms of financial contribution (“what could have been the monthly contribution”). Studies 5.3a, 5.3b, and 5.3c sequentially explored the possible moderating role of focus in retirement saving inertia. We suspected that shifting participants’ focus from financial contribution to present financial outcome (“what could have been saved by now”) or to future financial outcome (“what you could have ended up with at retirement age”).

Method

Participants & design. In Study 5.3a, 361 participants were randomly assigned to one of four groups of the 2 (difference: 1 year vs. 10 year) \times 2 (focus: contribution vs. present outcome) between-subjects design¹⁶. We performed the analyses on the data of 350 participants who answered the attention check correctly (44.6% female, $M_{\text{age}} = 33.27$, $SD = 10.94$).

In Study 5.3b, 407 participants were randomly assigned to one of four groups of the 2 (difference: 1 year vs. 10 year) \times 2 (focus: present outcome vs. future outcome) between-subjects design¹⁷. We performed analyses on the data of 379 participants who answered the attention check correctly (47% female, $M_{\text{age}} = 34.58$, $SD = 10.98$).

In Study 5.3c, 406 participants were randomly assigned to one of four groups of the 2 (difference: 1 year vs. 10 year) \times 2 (focus: contribution vs. future outcome) between-subjects design¹⁸. We performed analyses on the

¹⁶ We aimed to recruit 360 participants, based on a power analysis for an F -test (effect size $f = 0.2$, power $1-\beta = .95$, required $N = 327$).

¹⁷ We aimed to recruit 400 participants, based on a power analysis for an F -test (effect size $f = 0.2$, power $1-\beta = .95$, required $N = 327$).

¹⁸ We aimed to recruit 400 participants, based on a power analysis for an F -test (effect size $f = 0.2$, power $1-\beta = .95$, required $N = 327$).

data of 361 participants who answered the attention check correctly (39.3% female, $M_{\text{age}} = 34.35$, $SD = 10.49$).

Procedure & materials. The procedure in Studies 5.3a-c was similar to Studies 5.1 and 5.2. Participants first read about the missed opportunity and answered an attention check. They then read about the focal opportunity. As dependent variable, participants indicated how likely they would be to enroll in the retirement plan this year (1 = “very unlikely”; 7 = “very likely”). Different from Studies 5.1 and 5.2, participants could proceed with the study if they answered the attention check incorrectly.

Depending on focus condition, the missed and focal opportunity were described in terms of contribution, present outcome, or future outcome¹⁹. Depending on difference condition, the difference between the missed and focal opportunity was 1 year or 10 year. Table 1 provides an overview of the included focus conditions and manipulations in each study.

Results

The results of all three studies, the mean and standard deviation of likelihood to enroll per condition, are shown in Table 1. They were analyzed as difference \times focus ANOVAs with likelihood to enroll as dependent variable.

Study 5.3a. The ANOVA yielded a main effect of missed opportunity, $F(1, 346) = 12.766$, $p < .001$, $\eta_p^2 = .04$. Participants in the 10 year condition were less likely to enroll in the retirement plan ($M = 4.64$, $SD = 1.67$) than participants in the 1 year condition ($M = 5.24$, $SD = 1.63$). There was also a main effect of focus on likelihood to enroll, $F(1, 346) = 55.786$, $p < .001$, $\eta_p^2 = .14$. Participants in the contribution condition were less likely to enroll in the retirement plan ($M = 4.31$, $SD = 1.69$) than participants in the present outcome condition ($M = 5.54$, $SD = 1.41$). There was no interaction

¹⁹ Contribution, present outcome, and future outcome were based on a situation with 8% annual return (reinvested) and age 45 at time of the focal opportunity.

effect between difference and focus, $F(1, 346) = .15, p = .902$.

Study 5.3b. The ANOVA yielded no significant main effect of difference ($F(1, 375) = 1.671, p = .197, \eta_p^2 < .01$), no significant main effect of focus, $F(1, 375) = 3.415, p = .065, \eta_p^2 = .01$), and no significant interaction effect, $F(1, 375) = 0.235, p = .628, \eta_p^2 < .01$.

Study 5.3c. The ANOVA variable yielded a main effect of difference ($F(1, 357) = 9.662, p = .002, \eta_p^2 = .03$) and a main effect of focus, $F(1, 357) = 40.903, p < .001, \eta_p^2 = .10$, and a significant difference \times focus interaction, $F(1, 357) = 4.032, p = .045, \eta_p^2 = .01$.

When looking within the contribution condition, participants in the 10 year condition were significantly less likely to enroll than participants in the 1 year condition, $t(200) = 2.68, p = .008$, Cohen's $d = 0.38$. When looking within the future outcome condition, there is no significant difference in likelihood to enroll between the 10 year condition and the 1 year condition, $t(198) = 1.51, p = .133$.

Discussion

Study 5.3a-c indicate that the moderating role of focus on inaction inertia in retirement saving is subtle. Inaction inertia occurred in Study 5.3a, both when focus was on contribution and on present outcome. Inaction inertia did not occur in Study 5.3b, neither when focus was on present outcome or on future outcome. Finally, in Study 5.3c, inaction inertia occurred when focus was on contribution but not when focus was on future outcome.

Taken together, these results strengthen the support for an inaction inertia effect in retirement saving when focus is on contribution. However, the inaction inertia effect seems to become smaller, or less robust, as focus shifts from contribution towards present and future outcome. Independent of the difference between missed and focal opportunity, the results also indicate that people are more likely to enroll in a retirement plan when focus

is on future outcome than when focus is on contribution.

Table 1

Study 3a, 3b, 3c mean likelihood to enroll (on a scale from 1 = “very unlikely” to 7 = “very likely”) per condition.

The standard deviation is in parentheses.

Focus condition (10 year [1 year] condition)	Study 5.3a (N = 350)			Study 5.3b (N = 379)			Study 5.3c (N = 361)		
	1 year	10 year	<i>p</i>	1 year	10 year	<i>p</i>	1 year	10 year	<i>p</i>
<i>Contribution</i> (If you had enrolled 10 years ago [1 year ago], you would have put in \$250 [\$450] per month. To accumulate the same wealth you would now have to put in \$500 each month.)	4.60 (1.78)	4.03 (1.57)	.028	--	--	--	4.80 (1.66)	3.93 (1.91)	.001
<i>Present outcome</i> (If you had enrolled 10 years [1 year] ago, you would have saved \$46,940 [\$3,240]. Because you did not enroll, you now have no savings.)	5.84 (1.19)	5.24 (1.55)	.004	5.54 (1.35)	5.29 (1.73)	.249	--	--	--
<i>Future outcome</i> (If you had enrolled 10 years [1 year] ago, you would have ended up with \$367,000 [\$163,000] at age 65. Because you did not enroll, you will end up with \$148,000 at age 65 if you enroll this month.)	--	--	--	5.73 (1.18)	5.62 (1.13)	.509	5.55 (1.31)	5.36 (1.52)	.374

General Discussion

Retirement saving inertia is common and consequential. Many people do not adhere to the financial advice to start saving for retirement early in life, as illustrated by surprisingly low participation rates in presumably attractive retirement plans (Choi, Laibson, & Madrian, 2011; Hedesström, Svedsäter, & Gärling, 2004; Madrian & Shea, 2001; Thaler & Benartzi, 2004). One explanation for this inertia is that people do not care about their distant future income. This explanation seems insufficient or incorrect. In a recent Gallup poll, Americans rated “not having enough money for retirement” as their number one financial worry (Gallup, 2015). Similarly, in a series of surveys, a majority of Dutch participants indicated retirement saving as an important financial goal (Krijnen, Zeelenberg, & Breugelmans, 2016d; Nibud, 2015; Wijzer in Geldzaken, 2014). Thus, although people understand the long-term financial benefits of retirement saving, many remain inert.

In the search for other reasons underlying retirement saving inertia, the current article suggests a role for missed opportunities. Specifically, the first part of this article demonstrated that people’s retirement saving inertia may in part be the result of previous inaction. Most importantly, inaction inertia was the result of the mere passing of time, suggesting that retirement saving is a naturalistic setting where inaction inertia is likely. The second part of this article explored the moderating role of focus on inaction inertia in retirement saving. The results of three studies suggest that inaction inertia is robust when people focus on contribution but absent when people focus on future outcome.

How *should* people react to information about missed opportunities in retirement saving? A first possible answer, derived from a normative account of decision making, is that people should take advantage of attractive opportunities, irrespective of past failure to do so. In this sense, missed opportunities are comparable to sunk costs (Arkes & Blumer, 1985; Tykocinski & Ortmann, 2011). Similar to how past investments should not affect the decision to continue a project, the history of inaction should not

affect the decision to accept an attractive opportunity.

A second possible answer, coming from a motivational perspective, is that people for whom retirement saving is most pressing should be most likely to enroll. It seems plausible to assume that retirement saving is more pressing for someone who has failed to enroll for the past 10 years than for someone who has failed to enroll only for the past year. Hence, people with a longer history of inaction should be more likely to enroll in an attractive retirement plan.

At odds with both these perspectives – normative and motivational – is the current observation that people with the longest history of inaction are in fact *least* likely to enroll in an attractive retirement plan. Based on this observation, we suggest that in retirement saving people may fall prey to a cycle of inertia. For whatever reason, people miss initial opportunities to enroll. As a consequence of missing the initial opportunity, people become less likely to take advantage of subsequent (less attractive) opportunities. Finally, the longer one remains inert, the less likely one becomes to act on future (decreasingly attractive) opportunities.

We hypothesized the inaction inertia effect in retirement saving to diminish or disappear if people's attention is focused on outcome instead of on contribution. This hypothesis was based on previous research showing that inaction inertia is diminished or absent if people (1) focus on gains (Tykocinski et al., 1995), (2) decouple the past from the present (Van Putten et al., 2007), (3) are confronted with multiple options in the present (Van Putten et al., 2008), (4) focus on the positive aspects of the opportunity (Van Putten, Zeelenberg, Van Dijk, & Tykocinski, 2013), or (5) focus on possible improvement (Van Putten et al., 2009).

The role of temporal focus as a moderator seems to be more subtle than expected. A focus on present outcome (vs. contribution) does not moderate the inaction inertia effect, whereas a focus on future outcome (vs. contribution) does moderate the inaction inertia effect. A post-hoc

explanation for this difference between current and future outcome is that when attention is focused on present outcome, people frame opportunities as a loss (e.g., “I have saved nothing, whereas I could have saved \$10,000 if I started 10 years ago”). On the other hand, once attention is focused on future outcome, people frame opportunities as a gain (e.g., “I could have ended up with \$100,000 at retirement age, but if I start now I can still end up with \$80,000”).

The current findings are valuable as a theoretical extension of previous work on inaction inertia, but also lead to important practical implications. Educating people about the progressive nature of retirement saving has been suggested as a way to motivate saving. For instance, people increase their retirement contribution after seeing in a graph how savings grow over time (Goda, Manchester, & Sojourner, 2014; McKenzie & Liersch, 2011). However, caution is warranted when employing such a strategy. Communicating savings growth may unintentionally communicate information about missed opportunities. As such, financial education may backfire and cause more instead of less inertia.

Luckily, the current findings, as well as the broader literature, provide suggestions for how inaction inertia can be countered. The risk of people falling prey to inaction inertia seems smallest when saving opportunities are communicated in terms of *future* outcomes or gains (Tykocinski et al., 1995; Van Putten et al., 2009; Van Putten, Zeelenberg, Van Dijk, & Tykocinski, 2013). Therefore, providing information about savings growth is likely to work best (1) when tailored to the situation of the individual recipient and (2) when framed in terms of expected outcomes instead of in terms of necessary contributions. People in later stages of their career should not receive information explaining that starting to save while young would have been ideal. Not only is this information irrelevant, it can also cause continued inertia. Instead, it seems best to battle retirement saving inertia by explaining what can still be done to accumulate sufficient retirement wealth.

Chapter 6

Cost-of-waiting Underestimation in Retirement Saving

Many people are not saving enough for retirement. According to recent estimates, around half of U.S. households face a significant fall in their purchasing power upon retirement (Benartzi & Thaler, 2013; Kim & Hanna, 2013; Munnell, 2015). Even in the Netherlands, one of the highest ranked countries in terms of retirement saving adequacy (Mercer, 2015; OECD, 2015), approximately 20% of people save too little to meet their own goals (De Bresser & Knoef, 2015; Knoef et al., 2014; Knoef, Goudswaard, Been, & Caminada, 2015). Among the many causes for insufficient retirement saving is people's own behavior or, to be more precise, a lack of appropriate action. Many people postpone enrolling in a retirement plan or adjusting their savings rate, which may negatively affect their outcomes (Benartzi & Thaler, 2007; Carroll, Choi, Laibson, Madrian, & Metrick, 2009; Choi, Laibson, Madrian, & Metrick, 2002; Madrian & Shea, 2001; Rhee, 2013). In other words, when people get to decide between saving now and saving later, they frequently prefer to save later.

How can governments and financial institutions motivate people to act sooner? One popular response is to provide financial education. Considerable amounts of time, money, and effort have been spent on attempts to increase people's financial knowledge (Fernandes, Lynch Jr., & Netemeyer, 2014). This strategy rests on the assumption that people lack such knowledge and that providing financial education eventually improves financial behavior. The first part of this assumption seems undisputed. A vast body of literature demonstrates that many people lack understanding of financial concepts and numerical information (e.g., Estrada-Mejia, De Vries, & Zeelenberg, 2016; Lusardi & Mitchell, 2007). The second part of the assumption – that financial education improves financial behavior – is not supported by empirical evidence. Based on a meta-analysis, Fernandes et al., (2014, p. 1872) concluded that “financial education interventions studied explained only 0.1% of the variance in the financial behaviors studied.” Thus, financial education interventions have surprisingly little effect on people's financial behavior.

Does this mean that policymakers and financial institutions should give up on financial education altogether? We believe not. However, in order to come to interventions that motivate timely retirement saving, it is crucial to first understand the problem at hand. Why would people wait to save for retirement, even when waiting is financially costly on the long run? In this article, we propose and examine two explanations. The first explanation is that people wait to save because they *neglect* the financial cost of waiting. The second explanation, which is more specific to the financial domain, is that people wait to save because they *underestimate* the financial costs of waiting.

Whereas the distinction between these explanations may be subtle and not always clear-cut, its implications for policy and interventions are important. If retirement saving inertia is caused by cost-of-waiting *neglect*, then providing simple cost-of-waiting reminders (i.e., “waiting costs money”) would suffice to reduce inertia. If retirement saving inertia is caused by cost-of-waiting underestimation, then providing exact cost-of-waiting information (i.e., “waiting one year costs \$10,000 at retirement age”) is necessary to reduce inertia.

Interestingly, both the provision of reminders and the provision of exact information are used as strategies to promote timely retirement saving. For instance, the website of U.S. governmental ‘Saving Matters’ campaign provides cost-of-waiting reminders, by saying “You have one huge ally: time” and “Start now. Don’t wait. Time is critical.” (U.S. Department of Labor, Employee Benefits Security Administration, n.d.). The website of online broker Merrill Edge (n.d.) advises consumers that “it’s important to start saving early” because “the more time your money has the opportunity to grow, the easier it will be to help you reach your goal.”

On the other hand, many educational and promotional sources provide exact information about the consequences of waiting. For instance, CNN Money (n.d.) and Investopedia (Appleby, n.d.) start their guide to retirement planning with an example of the cost of a 10-year delay. Websites of financial service companies such as Vanguard (n.d.), Nationwide (n.d.),

and American Funds (n.d.) provide examples or calculators to illustrate the power of compound interest and the cost of waiting the financial domain.

In short, two strategies are used to promote timely retirement saving. The first strategy is to remind people that waiting costs money. The second strategy is to provide more exact cost-of-waiting information. The first strategy would suffice if retirement saving inertia can be explained by cost-of-waiting *neglect*. The second strategy is necessary if, instead, retirement saving inertia is explained by cost-of-waiting *underestimation*. Let us now discuss these two explanations in more detail.

People Neglect the Cost of Waiting

In retirement saving it is generally best to start as soon as possible (Munnell, Golub-Sass, & Webb, 2011). To put this differently, waiting to save costs money. Despite financial costs, many people wait until late in their working life before they undertake action (Lusardi & Mitchell, 2011; Madrian & Shea, 2001; Thaler & Benartzi, 2004). One possible explanation is that people *neglect* the cost of waiting. This explanation builds on research showing that people not always consider all normatively relevant factors in decision-making.

A first example of such a factor is opportunity cost, referring to the evaluation of non-chosen alternatives (Buchanan, 2008; Spiller, 2011). A rational decision-maker would consider all possible alternative uses of a resource, such as money, before making a choice (e.g., Larrick, Morgan, & Nisbett, 1990), but in reality people often neglect opportunity costs unless these are made salient (Frederick, Novemsky, Wang, Dhar, & Nowlis, 2009; Jones, Frisch, Yurak, & Kim, 1998; Plantinga, Krijnen et al., 2016d; Spiller, 2011).

People's neglect of normatively relevant factors goes beyond opportunity costs. Research suggests that people are inattentive to energy efficiency when buying electronic appliances, cars, and homes (Allcott, 2011; Allcott & Wozny, 2014; Gillingham & Palmer, 2014; Hausman, 1979; Sallee,

2013), to the price of ink cartridges when buying printers (Gabaix & Laibson, 2006), to shipping costs when bidding on eBay (Brown, Hossain, & Morgan, 2010; Hossain & Morgan, 2006), and to operating fees when selecting a mutual fund (Barber, Odean, & Zheng, 2005). As a result, people often buy products or services that seem cheap at first but turn out to be expensive on the long run.

As a final example, most people do not correct for inflation when comparing or evaluating prices (Fehr & Tyran, 2001; Fisher, 1928; Shafir, Diamond, & Tversky, 1997). This neglect forms the basis for the money illusion – the common confusion between nominal monetary values and real monetary values (Fisher, 1928; Shafir et al., 1997) – which may play a role in job offer evaluations (Shafir et al., 1997) and housing decisions (Brunnermeier & Julliard, 2008).

In short, people deviate from normative models of choice because they neglect factors that are not salient or that are deliberately shrouded (Gabaix & Laibson, 2006; Sunstein, 2011). If this is the case, then disclosing or making salient such factors should affect people's preferences and choices. Subtle reminders of opportunity costs may affect how people spend their money and time (Frederick et al., 2009; Spiller, 2011). Governments promote green behavior through eco-labeling schemes that disclose the hidden costs of appliances, cars, and homes (Piotrowski & Kratz, 1999). Finally, people may be less susceptible to the money illusion when the effects of inflation are salient, such as in periods of hyperinflation (Shafir et al., 1997).

The same logic may apply to retirement saving inertia. Perhaps people wait to save because the financial costs of waiting are not salient at time of deciding. If this explanation holds, then reminding people of the fact that waiting has costs should affect their preference for waiting.

People Underestimate the Cost of Waiting

An alternative explanation for retirement saving inertia is that people underestimate the cost of waiting. In other words, they are aware that waiting

costs money (i.e., no neglect) but they err in their estimation of the magnitude of these costs.

This explanation is supported by research on people's inability to account for exponential growth. Postponing retirement saving can be particularly costly because returns are compounded²⁰. The return of one year is a function of the original investment *plus* previous returns. Compounding leads to exponential savings growth and makes waiting costly, especially early on in life. Take a one-time \$10,000 investment yielding an annual return of 7%²¹. Over 40 years, this investment would grow to \$149,745²², amounting to a total return of 1497% on the original investment and an average annualized return of 37%. In this example, waiting only one year would cost \$9,796, which is almost 100% of the original investment.

McKenzie and Liersch (2011) found that most people systematically underestimate the effect of time on savings, supposedly because they assume savings to grow linearly instead of exponentially²³. This is in line with earlier work showing a more general tendency to underestimate exponential growth in savings (Eisenstein & Hoch, 2007; Stango & Zinman, 2009) as well as in other domains (Wagenaar & Sagaria, 1975; Wagenaar & Timmers, 1979). The misunderstanding and underestimation of exponential growth is also robust across different cultures (Keren, 1983).

²⁰ We use the words 'interest' and 'return' interchangeably. We refer to any financial return on an original investment. This can take different forms, such as return on equity or interest on savings.

²¹ This is a simplification. In reality, annual returns on equity differ over time and these temporal changes have great impact on the result of an investment. However, long-term rates of return on equity are typically around 10%. For instance, the S&P500 average annualized return between January 1st 1945 and December 31st 2015 was 10.80% (including dividends). Interest rates on savings accounts typically fluctuate less and are lower when averaged over a longer time.

²² $10000 \times (1.07^{40}) = 149744.578$

²³ Linear growth of money would happen if returns are not 'reinvested'. In retirement saving, this is quite rare.

Because people misunderstand exponential growth, it seems plausible that they also underestimate the benefits of starting to save early in life. McKenzie and Liersch (2011) asked participants who would end up with more savings – Alan, who deposits \$100/month for 40 years, or Bill, who deposits \$300/month but starts 20 years later. Most participants wrongly expected Bill to end up with more savings than Alan. Moreover, when asked how much Bill would have to deposit to make up for his 20-year delay, most participants greatly underestimated the cost of waiting. These results indicate that people not just underestimate savings growth, but also the cost of waiting and the difficulty of making up for a delay.

In short, many people do not account for exponential growth in financial and non-financial domains. As a result, people may underestimate the cost of waiting in retirement saving, which in turn may explain why they wait to save until late in working life. Cost-of-waiting underestimation is thus a more specific explanation than cost-of-waiting neglect. It assumes that people remain inert because they think waiting is cheap, not because they fail to consider that waiting has costs.

Outline of the Studies

We discussed two possible explanations for retirement saving inertia: cost-of-waiting *neglect* and cost-of-waiting *underestimation*. These explanations underlie two different strategies for promoting timely retirement saving: providing simple cost-of-waiting reminders and providing exact cost-of-waiting information.

The remainder of this article aims to examine which of these two strategies work best, and thus indirectly compares the two explanations for retirement saving inertia. We first test the role of underestimation, the more specific of the two explanations. In Study 1, we ask participants to estimate the cost of waiting in a relatively straightforward retirement saving situation. Do people underestimate the cost of waiting, even for the short delay of a one-time investment? Study 2 and 3 examine whether people wait less if they

are provided with exact cost-of-waiting information. Study 4 and 5 examine neglect, as a more general psychological process underlying retirement saving inertia. Would people wait less when provided with a simple cost-of-waiting reminder?

For all five studies, participants were recruited through Amazon's online crowdsourcing marketplace Mechanical Turk ('MTurk'). Only MTurk 'workers' who registered as Canadian or U.S. citizen were eligible for participation. In addition, we used a screening procedure based on participants' MTurk ID to ensure that people could not take part in more than one study. We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the studies.

Study 6.1: Estimating the Cost of Waiting

The goal of Study 1 was to examine whether people underestimate the cost of waiting in a simple saving situation with a single deposit and compound interest. Participants read about a one-time investment earning 7% interest annually over 40 years, and were then asked to estimate the financial cost - at age of retirement - of postponing the investment with one year. They were also informed about the actual cost of waiting and self-reported whether this was higher than, lower than, or close to what they expected.

Participants read one of two versions of the scenario, with the sole difference being that one version mentions the words 'compounded annually', while the other version leaves out these words. This variation enabled us to test whether people's estimates are affected by the explicit mentioning of compound interest. If estimates differ between the two conditions, then cost-of-waiting underestimation could be the result of people's implicit assumption that interest is not compounded (i.e., simple) unless mentioned explicitly. If estimates do not differ between the two conditions, then we may assume that people spontaneously expect compound interest, even when this is not explicitly mentioned. Obviously,

even if people spontaneously expect compound instead of simple interest, they may still misunderstand what compound interest is and how it affects saving growth.

Because we were specifically interested in people's tendency to wait in retirement saving, this study focused on cost-of-waiting estimates instead of on savings-growth estimates. This sets the current study apart from previous work on exponential growth estimation (Eisenstein & Hoch, 2007; Keren, 1983; Stango & Zinman, 2009; Wagenaar & Sagaria, 1975; Wagenaar & Timmers, 1979).

Experiment 1 of McKenzie and Liersch (2011) also examined whether people underestimate the growth of savings under compound interest. The present study was different from that experiment in two ways, making the task arguably simpler for participants. First, it described a one-time investment instead of a monthly contribution. As a result, savings grow only because of interest, and not because of monthly deposits. Second, participants estimated the consequences of a one-year delay instead of the outcome of savings growth over 10-year intervals. Would participants underestimate the cost of waiting when facing such a relatively straightforward task²⁴?

Method

One hundred and forty-one participants took part in the survey²⁵, and were assigned randomly to a compound interest salient condition or a compound interest not salient condition. We report the results of the 130 participants who answered all questions ($M_{\text{age}} = 30.58$, $SD = 8.60$, 34.6% female). Participants read the following scenario (with the words

²⁴ Note that the present task is *less complex* than the task in McKenzie and Liersch (2011) but obviously still not simple. We do not expect people to be able to perform the calculations necessary to come to the exact correct answer without using a piece of paper or a calculator.

²⁵ We aimed to recruit 130 participants through MTurk, based on a power analysis for a t -test (effect size $d = .5$, power $1 - \beta = .8$, required $N = 128$).

‘compounded annually’ being only part of the scenario in the compound interest salient condition):

“You want to deposit \$10,000 in a retirement savings account. This will be the only money you ever deposit in this account. The account earns 7% interest every year [, compounded annually]. You will retire 40 years from now. Until then, no money will be withdrawn from the account. You are not sure whether you should make the deposit right now, or whether you should wait another year and deposit the money then.”

Participants were asked: “How much money will it cost you (at retirement) to wait one year before making the deposit?” We instructed participants to provide a thoughtful guess and to not formally calculate the answer (McKenzie & Liersch, 2011)²⁶. After participants submitted an estimate, we informed them about the correct cost of waiting (\$9,796) and asked them whether it is higher than, lower than, or around what they expected.

Results & Discussion

To examine whether cost-of-waiting estimates differed between the two conditions, we performed a *t*-test with log-transformed cost-of-waiting estimates as dependent variable. This analysis yielded no significant difference, $t(127) = -0.45$, $p = .65$, indicating that cost-of-waiting estimates were not affected by the salience of compound interest manipulation. For the remainder of the analyses, we combined the data from both conditions.

A percentage error score was calculated for each participants’ estimate. This score indicates how much the estimate deviates from the correct answer, relative to the correct answer (\$9,796). Higher percentage

²⁶ The exact instructions were “When answering the question below, please provide your thoughtful best guess. In other words, it is important that you do not formally calculate your answer (e.g., by using a calculator or scratch paper). We want your best guess.”

error scores indicate less accurate estimates. Percentage error scores ranged from 2.08% to 1431.24%, with a median and modal percentage error score of 92.85%, corresponding to the modal estimate of \$700. To facilitate interpretation of responses, we categorized participants' raw estimates into five groups²⁷. See Table 1 for a description of the groups²⁸.

Almost half of the participants fell in the simple interest group. The majority of estimates (71.5%) were below our range of accurate answers. Only a small share of estimates were within the range of accurate answers. Around one in five participants overestimated the cost of waiting.

We examined whether participants perceived their own estimates as over- or underestimates compared to the actual cost of waiting one year (\$9,769). A majority of participants ($N = 88$, 67.7%) self-reported that the actual cost of waiting one year was higher than what they expected. A smaller group of participants ($N = 30$, 23.1%) found the cost of waiting lower than what they expected, and only few participants stated that it was close to or exactly what they expected ($N = 12$, 9.2%).

²⁷ This categorization was done after seeing the data. Before any analyses, incorrect punctuation and \$-signs were removed from the raw data.

²⁸ This categorization provided us with another means to test whether the distribution of participants' estimates differs between the compound interest salient condition and the compound interest not salient condition. A χ^2 -test showed no significant dependency between estimate category and condition, $\chi^2(4, N = 130) = 4.56, p = .336$. A second test showed that participants in the compound interest salient condition were just as likely to answer \$700 ($N = 28$, 42.4%) as were participants in the compound interest not salient condition ($N = 28$, 43.8%), $\chi^2(1, N = 130) = .02, p = .879$. These two analyses again indicate that people's estimates of the cost of waiting were not affected by the salience of compound interest.

Table 1
Categorization of estimates in Study 1.

Group	Estimate range	Frequency (%)
Low group	<\$700	8 (6.2%)
Simple interest group	\$700	56 (43.1%)
Anchor & adjust group	\$701-\$6,856	29 (22.3%)
Accurate group [+/- 30%]	\$6,857-\$12,735	9 (6.9%)
High group	>\$12,736	28 (21.5%)

Both from our categorization of participants' estimates and from participants' self-reported responses to the actual cost of waiting, the picture emerges that a majority of participants vastly underestimated the financial cost of waiting one year before making a one-time investment. Most of those who underestimated the cost of waiting seemed to do so because they confused simple interest with compound interest. These findings add to previous research on people's underestimation of exponential growth (Eisenstein & Hoch, 2007; Keren, 1983; McKenzie & Liersch, 2011; Stango & Zinman, 2009; Wagenaar & Sagaria, 1975; Wagenaar & Timmers, 1979). Apparently, people's flawed understanding of exponential growth affects their estimates of the cost of waiting in a systematic way; people underestimate the cost of waiting, even in a relatively straightforward scenario.

The distribution of participants' estimates was independent of whether compound interest was made salient. From this, we infer that the high number of participants who confuse the cost of waiting under exponential savings growth with the cost of waiting under linear savings growth cannot be explained by the absence of information about compound interest. Of course, even if people know or spontaneously expect interest to be compound, they may still not know what compounding means or how it

affects the cost of waiting. McKenzie and Liersch (2011) examined this possibility and found that participants who provided a correct explanation of compound interest were just as likely to underestimate savings growth as participants who provided an incorrect explanation of compound interest. Combining these results with the findings of the current study suggests the following: Whereas many people lack basic knowledge of compound interest (e.g., Lusardi & Mitchell, 2009; Van Rooij, Lusardi, & Alessie, 2011), this can probably not fully explain people's retirement saving inertia. To understand retirement saving inertia, we have to look beyond a mere lack of knowledge.

The next question, examined in Study 2 and Study 3, is whether the underestimation of the cost of waiting plays a role in people's tendency to wait in retirement saving. In other words, do people wait because they think that waiting is relatively cheap? To answer this question, we studied whether providing participants with exact cost-of-waiting information would decrease their likelihood to wait.

Study 6.2: Providing Exact Cost-of-waiting Information

Method

One hundred and fifty-seven participants took part in the survey²⁹, and were assigned randomly to an exact cost condition or a control condition. We report the results of the 152 participants who answered all questions ($M_{\text{age}} = 33.78$, $SD = 10.61$, 44.7% female). In both conditions, participants read the following scenario:

“You recently turned 25. You plan to retire 40 years from now. Last week, you unexpectedly inherited \$12,000 from an old-uncle you barely knew. You want to use the money to make a one-time deposit to a retirement savings account. The account earns 7% interest every year. Once deposited, you will not be able to withdraw any money

²⁹ We aimed to recruit 150 participants through MTurk, based on a power analysis for a χ^2 -test ($df = 1$, effect size $w = .3$, power $1 - \beta = .95$, required $N = 145$).

from the account until you retire. However, you are not sure whether you should make the one-time deposit right away, or whether you should wait for another year and deposit the money then. This year, you plan to move to a new apartment. You wonder whether it might be smart to keep the \$12,000 as a backup for unforeseen expenditures”.

In the exact cost condition, this scenario was followed by information about the financial cost of waiting one year: “Because of compounded interest, waiting one year would accumulate to a loss of \$11,700 at retirement age”. In both conditions, participants were then asked what they would do if they were in this situation. In the control condition, they could choose to either “deposit now” or “wait one year”. In the exact cost condition, the choice was between “deposit now” and “wait one year and accept the loss of \$11,700”.

Results & Discussion

More participants indicated that they would deposit right away in the exact cost condition (71.4%) than in the control condition (53.3%), $\chi^2(1, N = 152) = 5.31, p = .021, \varphi = .19$. This difference indicates that (1) people use information about the exact cost of waiting in their decision to save now or save later, and (2) the actual cost of waiting is (on average) higher than what people expect, given that providing exact cost-of-waiting information makes people *less* likely to postpone their investment.

The goal of Study 3 was twofold. First, we sought additional evidence that providing participants with exact cost-of-waiting information decreases waiting. Therefore, we used the exact same scenarios as in Study 2. Second, we added a condition to test whether the effect of the manipulation on people’s choices was (partly) dependent on emphasizing the cost of waiting in the choice option. In this third condition, exact cost-of-waiting information was provided only in the scenario, but not in the choice option.

Study 6.3: Emphasizing the Exact Cost of Waiting in Choice Options

Method

One hundred and ninety-one participants took part in the survey³⁰. We report the results of the 182 participants who answered all questions ($M_{\text{age}} = 31.86$, $SD = 9.93$, 33% female). Participants were assigned randomly to an exact cost condition, a shortened condition, or a control condition. The exact cost condition and control condition were identical to the corresponding conditions in Study 2. The shortened condition was similar to the exact cost condition in Study 2, except that the answer “Wait one year” was *not* followed by “and accept the loss of \$11,700” as part of the answer option.

Results & Discussion

The likelihood of participants indicating that they would deposit right away was dependent on whether the participants were assigned to the exact cost condition (80.3%), the shortened condition (72.1%), or the control condition (53.3%), $\chi^2(2, N = 182) = 10.76, p = .005, \varphi = .24$

To follow up on this difference, we performed three pairwise comparisons (control vs. exact cost, control vs. shortened, shortened vs. exact cost). The percentage of participants depositing right away was significantly higher in the exact cost condition than in the control condition, $\chi^2(1, N = 121) = 9.96, p = .002, \varphi = .29$. The percentage of participants depositing right away was also significantly higher in the shortened condition than in the control condition, $\chi^2(1, N = 121) = 4.58, p = .032, \varphi = .20$. There was no significant difference between the shortened condition and exact cost condition, $\chi^2(1, N = 122) = 1.13, p = .288, \varphi = .10$.³¹

³⁰ We aimed to recruit 180 participants through MTurk, based on a power analysis for a χ^2 -test ($df = 2$, effect size $w = .3$, power $1 - \beta = .95$, required $N = 172$).

³¹ Performing the same contrasts with a Bonferroni or Bonferroni-Holm correction would indicate a significant difference between exact cost condition and control condition, no

Study 3 thus replicates the results of Study 2. Providing exact cost-of-waiting information affects participants' choices and decreases waiting. Study 3 also indicates that a shortened version of the cost-of-waiting information may be as effective as a version where the cost of waiting is emphasized in the choice options.

In Study 4 we tested whether the key finding of Study 2 and 3 (i.e., cost-of-waiting information decreases waiting) can be explained by cost-of-waiting *neglect* instead of cost-of-waiting *underestimation*. Participants read a scenario similar to that of Study 2 and Study 3. However, instead of reading exact cost-of-waiting information, participants are only reminded of the fact that waiting costs money.

Study 6.4: Providing a Cost-of-waiting Reminder

Method

All 200 participants³² ($M_{\text{age}} = 36.05$, $SD = 11.75$, 42.5% female) completed the survey and were assigned randomly to a reminder condition or a control condition. The control condition was identical to the control condition in Study 2 and Study 3. The reminder condition was similar to the exact cost condition in Study 2 and Study 3, except that the sentence “Because of compounded interest, waiting one year would accumulate to a loss of \$11,700 at retirement age”, was replaced by the sentence “Because of compound interest, waiting one year would cost you money at retirement”. In the answer option, “Wait one year and accept the loss of \$11,700” was replaced by “Wait one year and accept the loss of money.”

significant difference between shortened condition and control condition, and no significant difference between shortened condition and exact cost condition.

³² We aimed to recruit 200 participants through MTurk, based on a power analysis for a χ^2 -test ($df = 1$, effect size $w = .2$, power $1 - \beta = .80$, required $N = 197$).

Results

Participants in the reminder condition were equally likely to deposit right away (61.0%), as participants in the control condition (58.0%), $\chi^2(1, N = 200) = .19, p = .666, \varphi = .03$.

Participants choices were unaffected by a simple cost-of-waiting reminder. Thus, the effect of cost-of-waiting information on people's choices in Study 2 and Study 3 seems driven by information about the exact cost of waiting. If we inform people about the actual cost of waiting, they indicate that they would wait less (Study 2 and Study 3). If, on the other hand, we merely remind people that waiting is financially costly, their choices remain unaffected (Study 4). These findings indicate that retirement saving inertia may be caused primarily by cost-of-waiting underestimation, not by cost-of-waiting neglect.

In Study 5, we aimed to put this proposed process to a test by strictly ruling out the explanation that people neglect instead of underestimate the cost of waiting. We asked half of the participants to estimate the cost of waiting before making their decision. If these participants are as likely to indicate that they would wait as participants who did not first estimate the cost of waiting, then this would strongly support that the differences in Study 2 and Study 3 are due to people's initial underestimation of the cost of waiting. This set-up also enabled us to examine whether cost-of-waiting estimates predict the likelihood of waiting.

Study 6.5: Prompting the Estimation of Cost of Waiting

Method

Two hundred and twenty-nine participants took part in the survey³³. We report the results of the 220 participants who answered all questions (M_{age}

³³ We aimed to recruit 220 participants through MTurk, based on a power analysis for a χ^2 -test ($df = 1$, effect size $w = .2$, power $1 - \beta = .80$, required $N = 197$).

= 34.57, $SD = 10.86$, 45.9% female). Participants were assigned randomly to an estimate condition or a control condition. In the control condition, participants read the exact same scenario as in the control condition of Study 2. In the estimate condition, participants read the same scenario, but were also reminded of the cost of waiting and were asked to estimate this cost of waiting: “Because of compound interest, waiting one year would cost you money at retirement. Try to estimate how much money it would cost you (at retirement) to wait one year before making the deposit.”³⁴ After providing their best guesses, participants were asked the same question as participants in the control condition, except that the answer option said “Wait one year and accept the loss of money”.

On the next page, participants in the estimate condition were informed about the correct cost of waiting one year (\$11,756) and then asked whether this cost of waiting one year was (1) higher than expected, (2) close to/exactly what they expected, or (3) lower than they expected.

Results & Discussion

Participants in the estimate condition were as likely to deposit right away (63.6%), as participants in the control condition (60.4%), $\chi^2(1, N = 220) = .25, p = .616, \varphi = .03$. Again, a simple cost-of-waiting reminder did not affect participants’ choices. This supports that notion that retirement saving inertia is caused by cost-of-waiting underestimation and not by cost-of-waiting neglect.

We now turn to an analysis of the estimates provided by participants in the estimate condition. To examine the proposed process (i.e., cost of waiting underestimation causes inertia), we performed a binary logistic regression with the log-transformed cost-of-waiting estimates as independent

³⁴ As in Study 1, participants were instructed: “When answering the question below, please provide your thoughtful best guess. In other words, it is important that you do not formally calculate your answer (e.g., by using a calculator or scratch paper). We want your best guess.”

variable and choice as dependent variable. This analysis yielded a significant effect (odds ratio = 0.50, $p = .017$), indicating that higher cost-of-waiting estimates were related to a higher likelihood to deposit right away.

As in Study 1, we calculated a percentage error score for each participant in the estimate condition. This score indicates how much the participant's estimate deviates from the correct answer, relative to the correct answer (\$11,756). Percentage error scores ranged from 2.08% to 8406.29%. The median percentage error score was 92.34%. The modal percentage error score was 92.85%, corresponding to the modal estimate of \$840.

We used a categorization similar to the one used in Study 1 (see Table 2 for a description of the categories). Of the 109 participants in the estimate condition, a majority of estimates ($N = 75$, 68.8%) are categorized as lower than accurate. Those participants' estimates are lower than \$8,229, implying an underestimation of 30% or more, relative to the actual cost of waiting at retirement age (\$11,756).

In accordance with this pattern, a majority of participants in the estimate condition ($N = 78$, 71.6%) self-reported that the actual cost of waiting one year (\$11,756) was higher than what they expected. A smaller group of participants in the estimate condition ($N = 18$, 16.5%) found the cost of waiting lower than what they expected, and only few participants in the estimate condition state that it was close to or exactly what they expected ($N = 13$, 11.9%).

Table 2
Categorization of estimates in Study 5.

Group	Estimate range	Frequency (%)
Low group	<\$800	21 (19.3%)
Simple interest group	\$800-\$840	20 (18.3%)
Anchor & adjust group	\$841-\$8,228	34 (31.2%)
Accurate group [+/- 30%]	\$8,229-\$15,284	19 (17.4%)
High group	>\$15,284	15 (13.8%)

General Discussion

The studies presented in this article demonstrate three points. First, most people underestimate the cost of waiting, even in a relatively straightforward retirement saving situation. Second, providing exact cost-of-waiting information affects hypothetical choices between saving now and saving later. Third, the effect of cost-of-waiting information on people's choices in these studies is the result of underestimation, instead of a more general neglect of the consequences of waiting. In this section, we discuss the implications of these three points.

Most people underestimate the cost of waiting. Previous work has shown that most people are unable to anticipate the effect of exponential growth on outcomes in both non-financial (e.g., Wagenaar & Sagaria, 1975) and financial domains (e.g., McKenzie & Liersch, 2011). The findings in the current article add to previous research because the used problems relate to a decision that people make in real life (i.e., whether to save now or later) but are simplified such that we can more easily determine and rule out underlying mechanisms. Because of this, we can draw conclusions that are both of practical and theoretical relevance.

The first conclusion is that misunderstanding exponential growth causes people to not only underestimate outcomes but also the cost of waiting. Moreover, because of the relatively simple structure of the problems in Study 1 and Study 5 – a one-time investment, short delay, with only relevant information available – we have little reason to assume that confusion explains underestimation. Whereas in real life people may be confused by financial information, it is unlikely that this explains underestimation in the current studies. Instead, the results indicate that many people use a calculation of simple interest in their estimate for the cost of waiting. In reality, under compounding interest, waiting one year is much costlier at the beginning than at the end of a 40-year accumulation period. It is exactly this important insight about the dynamics of saving – the cost of waiting changes (rapidly) over time – which people seem to misunderstand.

Providing timely cost-of-waiting information affects people's choices between saving now and saving later. In the current studies, participants who were provided information about the cost of waiting indicated that they would be less likely to postpone saving for retirement compared to participants who were not provided such information. Thus, informing people about the cost of waiting may form the basis of a simple intervention to promote timely retirement saving. Such an intervention would be simple in two ways. First, communicating the cost of waiting requires only a single sentence, making the intervention cheap and easy to implement. Second, processing the intervention requires almost no cognitive processing on the part of the consumer, as the provided information is easy to interpret, concrete, and applies to the decision at hand.

Fernandes et al., (2014) propose that the small overall effect of financial education on financial behavior may in part be explained by its decay over time: The longer the time between the intervention and the downstream behavior of interest, the smaller the effect. This suggests that more promising results are to be expected if the time between an intervention and the opportunity to put the acquired knowledge into action is minimized (Fernandes et al., 2014; Mandell, 2006). Ideally, such ‘just-in-time’

interventions are tied directly to financial actions or decisions. For instance, people would receive information about the consequences of their retirement saving decisions at a time when they are considering making those decisions. Because providing cost-of-waiting information would be simple, both for the ‘financial educator’ and for the consumer, it bears great promise as a just-in-time financial education intervention.

As the basis for possible interventions, the current studies shed light on an interesting characteristic of financial decisions. In most situations, people are in fact sequentially making two types of decisions. First, people choose between different options (e.g., *how* should I save for my retirement?). After this, people choose between different moments to implement their option (e.g., *when* should I start saving for my retirement?). Financial education interventions can focus on both dimensions. People can be informed about the available options and about which option would best suit their wants and needs, or they can be informed about the consequences of making a choice now or later. It seems most logical to connect the first type financial education to the first decision and the second type of financial education to the second decision. Therefore, we expect that the best way to reduce inertia in retirement saving is by providing information about the consequences of inertia. In the future, the feasibility and effectiveness of such an intervention could be tested in the field.

Neglect cannot explain the effect of cost-of-waiting information on people’s choices in the current studies. After having established that people underestimate the cost of waiting, and that people’s choices are affected by accurate information about the cost of waiting, the question that naturally follows is whether these two findings are related. From the contrasting patterns of results in Study 4 and 5, as compared with Study 2 and 3, we conclude that the effect of cost-of-waiting information on saving decisions is driven by people’s initial underestimation of the cost of waiting, and not by people’s neglect of the fact that waiting is financially costly.

These findings suggest that reminding people of the cost of waiting may be insufficient to promote timely retirement saving. Instead, governments and financial institutions should provide more exact cost-of-waiting information. However, the findings should not be interpreted as evidence that cost-of-waiting neglect play no role retirement saving inertia. It is possible that the neglect of consequences plays a role in retirement saving inertia, especially in situations where these consequences are initially 'hidden' to the decision maker. Future research could examine, for instance, whether people's neglect of the consequences of sticking the status quo explains why many people wait long before they start saving for retirement.

Conclusion. This research examined people's underestimation of the cost of waiting in retirement saving, as well as its role in retirement saving inertia. Based on five studies, we conclude: (1) Most people underestimate the cost of waiting; (2) Providing exact cost-of-waiting information affects people's choices between saving now and saving later; (3) This effect is the result of people's initial underestimation, not of a more general neglect of the cost of waiting. These findings demonstrate that the problems people have with calculating exponential growth affects their decisions in a dynamic context like retirement saving. Aside from this theoretical contribution, the findings form the basis of a possibly powerful intervention aimed at reducing inertia in retirement saving. Providing information about the actual financial consequences of postponing retirement saving can make people less likely to wait.

Chapter 7

Discussion

In this dissertation, I studied the psychological dynamics of inertia in the context of retirement saving. The starting point of my research was the observation that people often do nothing, even when taking action would seem beneficial to them. Having enough money to live comfortably during retirement is an attractive prospect highly valued by most. Nonetheless, many people do little to prepare for retirement and end up with insufficient savings. This is not only true in the United States, where experts and news media have started talking about a looming retirement crisis (James & Ghilarducci, 2016). It is also true in the Netherlands. Last year, both the AFM (Dutch Authority for the Financial Markets, similar to the SEC in the United States) and the Nibud (Dutch National Institute for Family Finance Information) expressed their concerns about the fact that between 20% and 30% of future retirees will end up with too little retirement savings to meet their own goals (De Bresser & Knoef, 2015; Knoef et al., 2014; Knoef, Goudswaard, Been, & Caminada, 2015; Van der Schors, Siesling, Starink, & Warnaar, 2016).

On the basis of the research presented in this dissertation, an extensive literature review, correlational survey research, and experimental studies, I draw two main conclusions. First, ‘people do not care about retirement’ is an inadequate explanation for retirement saving inertia. Second, other easily overlooked factors contribute to inertia more directly. Let me provide an overview of how each previous chapter has led me to these conclusions.

The central argument in Chapter 2, the extensive review of relevant economic and psychological literature, was that retirement saving inertia is not always the result of a lack of appreciation or a lack of understanding of the long-term importance of taking action. Instead, various other psychological mechanisms cause people to do nothing. On the one hand, people underestimate or neglect the financial benefits of timely action. On the other, people often have appealing reasons for doing nothing, such as an expected increase in accuracy if one postpones a decision, the avoidance of potential regret by not committing oneself to a certain course of action, an increase in confidence as the additional time is used to gather more

information or simply get used to the idea of a certain choice, the retention of flexibility by extending commitment, present-biased preferences that lead one to place less value on the future, or undue optimism about the future. Therefore, policy, communication, and education attempts in retirement saving should focus less on explaining the '*why*' of retirement saving and more on explaining to the general public the '*why now*' and the '*how*' of retirement saving.

Chapters 3-6 provided first empirical support for these arguments. Chapter 3 showed in a series of large scale and representative surveys that importance is a rather weak and indirect predictor of people's retirement preparations. Second, Chapter 4 demonstrated by means of a series of controlled experiments that importance even contributes to more inertia in the form of decision deferral. The experiments in Chapter 5 showed that people sometimes pass on attractive opportunities to save because they have missed better opportunities in the past. In a context where opportunities gradually worsen over time, as retirement saving is, this inaction inertia effect can be the result of a mere passing of time. A gradual decrease in the attractiveness of saving opportunities thus contributes to continued inertia. In a series of experimental studies in Chapter 6, people underestimated the cost of waiting under exponential growth. More importantly, this underestimation was associated with inertia. People wait to save because they think that waiting is cheaper than it actually is. The studies also found that informing people about the cost of waiting reduces the likelihood of waiting.

Taken together, Chapters 3 and 4 indicate that a lack of importance by itself cannot explain retirement saving inertia and that increasing importance may even cause instead of cure inertia. Chapters 5 and 6 provide empirical evidence for inaction inertia and cost-of-waiting underestimation as viable explanations for inertia. Hence, the simplistic go-to explanation for inertia – people do not care – turned out to be inadequate. Instead, the findings in this dissertation present a view of inertia as a multi-faceted phenomenon, driven by different psychological mechanisms depending on the situation. I identified these mechanisms and analyzed when and why they

lead to inertia. This is an important contribution, as it turns inertia into an understandable and preventable phenomenon.

In the following sections, I elaborate on this view of inertia. Specifically, I first extend the findings from previous chapters by distinguishing three broad mechanisms underlying inertia: (1) inertia as a conflict between present and future, (2) inertia as a strategy to avoid mistakes, and (3) inertia as a misunderstanding of dynamic environments. Finally, I suggest guidelines for how policy can help people to overcome inertia. Along the way, where this is relevant, I will point out opportunities for future research.

Inertia as a Conflict between Present and Future

Chapter 1 described the contradictory nature of inertia. People remain passive even if taking action is objectively beneficial. In examining this contradiction, my initial approach has been to analyze and deconstruct ‘people do not care’ as an explanation for inertia. Right now, I want to take the opportunity to reconstruct this explanation, by making clear that there are situations where it does hold.

Sometimes, people do nothing because they do not care about or do not understand the benefits of taking action. In such cases, increasing incentives or providing information can be effective ways to promote behavior. For instance, one can imagine that informing people about the dangers of catching a disease while on vacation motivates them to get a vaccine or to go somewhere else. But, what then determines whether such an intervention will be successful or not?

I reason that the answer lies in the temporal distance between the action and the possible outcome. If the time between action and outcome is short, then informing people about the consequences of taking action is likely to have a direct effect on behavior. However, if the time between action and outcome is long, then informing people about the consequences of taking action is less likely to have a direct effect on behavior.

Let me clarify this reasoning by returning to the example of before. Informing people about the benefits of vaccination should affect behavior if the benefits are temporally proximate. For instance, if the vacation is only two days away and people can easily imagine how devastated they would be if they would become ill, then information may motivate action. However, if the vacation is six months away, then information about the consequences of vaccination is less likely to appeal to the imagination or to spur action.

Chapter 3 provides an indication that this reasoning might be correct. For retirement saving, where the time between actions and outcomes is long, I find that inertia is common and that perceived importance is only a weak predictor of whether people take action. Furthermore, perceived difficulty, which is a temporally proximate consideration in retirement saving, is a stronger predictor of whether people take action.

Interestingly, the idea that the distinction between short- and long-term considerations is important in predicting when actions follow from intentions appears in the writings of many psychologists and behavioral economists. For instance, the notion of present-biased preferences or myopia, as captured by a hyperbolic discounting function, implies that people value costs and benefits in the present more than costs and benefits in the future (Ainslie, 1975; Akerlof, 1991; Laibson, 1997; Strotz, 1955). Typically, the costs of taking action (e.g., the time, effort, and pain involved in getting a shot) are temporally proximate, whereas the benefits of taking action (e.g., not getting ill) are delayed. Therefore, people have to invest time, effort, and possibly other resources such as money, to obtain delayed benefits.

Building on the notion of present-biased preferences, O'Donoghue and Rabin (2001) argued that people tradeoff different considerations when they make plans than when they take action. When making plans, people consider all costs and benefits. When taking action, people consider primarily the immediate costs and benefits. Hence, people fail to follow through on intentions when the benefits of taking action materialize only in the distant future.

Similar distinctions in how people think about behavior now versus behavior in the future are central to action identification theory (Vallacher & Wegner, 1987) and temporal construal theory (Liberman & Trope, 1998; Trope & Liberman, 2003). Action identification theory distinguishes between higher-level identifications, which relate to why an action is to be performed (thoughts we typically have about future behaviors), and lower-level identifications, which relate to how an action is to be performed (which is more typical in the here and now). Temporal construal theory distinguishes between desirability considerations and feasibility considerations. Higher-level identifications and desirability considerations are linked to making plans or to continuing an ongoing action; lower-level identifications and feasibility considerations are linked to taking action.

Actually, these ideas in action identification theory and temporal construal theory about long term abstract and short term concrete considerations resonate well with Thaler and Shefrin's (1981) proposal that we have a planner and a doer in our heads. These authors modeled self-control problems not as a conflict between different considerations but as a conflict between two types of inner decision-makers: a planner who is farsighted and considers all future consequences, and a doer who is myopic and considers only the immediate consequences. This in turn fits with recent work on future-self continuity, which also conceptualizes self-control problems as a conflict between multiple selves (Ersner-Hershfield, Garton, Ballard, Samanez-Larkin, & Knutson, 2009; Ersner-Hershfield, Wimmer, & Knutson, 2009). One's willingness to invest resources (e.g., money, effort, time) in order to obtain distant-future outcomes depends on the perception of continuity in personality between present and future selves. In other words, those who believe that their future self will be similar or closely linked to their present self are more willing to invest effort and time (i.e., less procrastination) and more willing to invest money (i.e., more saving). Interestingly, prompting people to visualize their future selves may increase future-self continuity and promote retirement saving (Brüggen, Rohde, & Van den Broeke, 2013; Hershfield et al., 2011).

Taken together, the findings in this dissertation fit with a view of inertia as a conflict between long- and short-term considerations. In forming intentions, people consider both long- and short-term consequences. When taking action, people consider primarily the short-term consequences. Inertia is therefore most likely if the time between action and outcome is long. Therefore, understanding the psychological effect of temporal differences between action and outcome is a prerequisite to understanding and overcoming inertia.

Inertia as a Strategy to Avoid Mistakes

Inertia is more than procrastination alone. Once people have initiated the decision-making process, they may still defer their choice and do nothing. Deferral can be motivated by a search for options, a search for information, or a search for solid reasons to justify a decision to oneself or others. As such, it makes sense that deferral is more likely to the extent that the decision is more important, as was demonstrated by the experiments in Chapter 4. People want to make a better decision if the decision is important. Hence, they invest more time and effort in the decision process, assuming that this will improve their choice (Fennema & Kleinmuntz, 1995; Kleinmuntz & Schkade, 1993).

Thus, inertia can be a strategy to avoid mistakes. Lerner and Tetlock (1999) found that people who feel that they have to explain or justify their decision, to others or to themselves, engage in more effortful and extensive deliberation. In addition, decision justification theory postulates that regret can arise not only from the outcome of a decision but also from the process leading up to a choice (Connolly & Zeelenberg, 2002). The anticipation of regret will be more salient if a decision is important, causing people to opt for extensive deliberation. Finally, recent research suggested that various other forms of decision-making inertia (e.g., default bias, status quo bias, and inaction inertia) could be the result of a motivation for closure (Otto, Clarkson, & Kardes, 2016). People who were most bothered by the decision process were most likely to use strategies that bypass decision making.

So, people do nothing because doing nothing is easy to justify, less likely to cause blame and regret, and a quick way to close the decision. Intriguingly, this may only be a short-term solution. Whereas people generally regret actions more than inactions in the short term, this pattern reverses over time. When looking back at their lives, people seem to regret inactions more than actions (Gilovich & Medvec, 1994, 1995). As a case in point, Americans indicate “not saving for retirement early enough” as their top financial regret (Bell, 2016).

Chapter 5 finds that inertia can result from the realization that better opportunities to take action have been missed in the past. As with the deferral of important decisions in Chapter 4, regret has been proposed to play a role in inaction inertia as well (e.g., Arkes, Kung, & Hutzel, 2002; Tykocinski & Pittman, 1998, 2001). As a means to avoid regret for having missed the initial opportunity, people may want to avoid any subsequent related opportunities altogether. Studies examining this explanation show a complex pattern of results, indicating that regret is not the sole reason for the inaction inertia effect (see Zeelenberg, Nijstad, & Van Putten, & Van Dijk, 2005).

An alternative explanation for inaction inertia combines regret over the missed opportunity with the devaluation of subsequent opportunities (Van Putten, Zeelenberg, Van Dijk, & Tykocinski, 2013; Zeelenberg & Van Putten, 2005). According to this ‘sour grapes’ explanation people strategically downplay, or devalue the missed opportunity to avoid regret. This devaluation makes subsequent similar opportunities less attractive. There is some evidence supporting the indirect role of regret in causing inaction inertia (see Van Putten, Zeelenberg, Van Dijk, & Tykocinski, 2013), but more research is definitely needed. Future research could also examine how the framing of choices and outcomes can change the anticipation of regret and blame over actions. Would people be more likely to come to action if the consequences of sticking with the status quo, and their responsibility for these consequences, are more salient?

People who do nothing when action is needed may come across as apathetic or as extremely passive. However, Chapters 4 and 5, in combination with the discussed literature on accountability, regret, and inaction inertia, indicate that the underlying reasoning is rather proactive instead. The anticipation of regret and blame over mistakes drives people to search for better options and information, and to pass on seemingly inadequate opportunities. Inertia is generally interpreted as an indication that people do not care enough to take action. In reality, inertia can be deliberated inaction and as such a disguised form of taking action.

Inertia as a Misunderstanding of Dynamic Environments

Independent of whether it is a conflict between present and future or a strategy to avoid mistakes, inertia can harm outcomes. Imagine a couple looking for a new apartment. They encounter a decent option but choose to wait and see if there are better options available. After a few days it turns out there are no better options. Unfortunately, the initial option is no longer available. Whereas the initial delay was motivated by a search for better options, it led to a worse outcome after all.

The concern that inertia may do more harm than good is particularly relevant in dynamic environments where people make a series of decisions and where the outcomes of decisions change over time. A surgeon who monitors a patient's health makes hour-by-hour decisions about whether to remain passive or initiate surgery. For each of these decisions, the outcomes associated with the options are slightly different. Waiting provides the surgeon with valuable time to gather information and consider all available options. Waiting also increases the risk of severe complications. This presents a complex decision problem to the surgeon, who has to tradeoff the changing costs and benefits of prolonged information search.

The ever-changing nature of such decision environments not only makes inertia more consequential, it also complicates decision making and makes inertia more likely. It does so in two ways: people consider irrelevant

information about the past and are unable to predict changes in the future. First, Chapter 5 shows that when opportunities gradually change over time, missed opportunities serve as a naturalistic, albeit irrelevant, comparison for current opportunities. People compare the present to the past and realize that they should have taken action before. Think of a person who realizes that starting to pay off a credit card debt would have been cheaper six months ago. Or, a person who realizes that initiating a diet would have been easier two years ago. These realizations cause prolonged inaction and people may fall prey to a cycle of inertia. The longer one does nothing, the less likely one will be to take action. Second, Chapter 6 shows that in dynamic environments, people find it difficult to predict or project how opportunities and outcomes will change over time. People misunderstand exponential growth, are unable to compare the present to the future, and therefore fail to realize that the best moment to take action is right now.

Understanding that inertia may be a product of dynamic decision environments is important because such environments are omnipresent. In the consumer domain, products become unavailable and prices change. A search for the best available flight may end in disappointment when all flights are fully booked or when prices rise. At the same time, early booking can produce negative emotions as well, when prices drop. In the health domain, waiting is often associated with more information and more risk. Once the surgeon realizes that surgery is inevitable, she may also immediately realize that the best opportunity to perform it has already passed. Finally, in the financial domain, exponential growth plays a role in saving, borrowing, and investing under compounding interest. People systematically underestimate exponential growth and this affects financial decisions.

People seem to have inherent difficulties in dealing with decision situations that gradually change over time (Brehmer, 1992; Kerstholt, 1994, 1995). Additional research could look at how information about past and future opportunities helps or hinders people in taking action when action is wanted or needed. It is very well possible that the same information (e.g.,

“savings grow rapidly over time”) motivates those who consider the future, but demotivates those who look back at the past.

Overcoming Inertia

In the previous sections, I extended the findings from Chapters 2-6 by distinguishing three types of inertia. This enriched view of inertia provides insights for how to overcome inertia. In this section, I highlight possible implications for three forms of policy: simplification, incentives, and information. Whereas the recommendations in Chapter 2 were tailored to the context of retirement saving, the implications in the current section are also relevant outside of retirement saving.

Note that what follows are suggestions about what the literature and the current research imply for policy. It is important to not directly implement recommendations, but to first test them with the relevant population, and to adjust them accordingly. This will lead to evidence-based interventions that are much more likely to result in favorable behavioral change.

Simplification. People remain passive because the benefits of taking action do not outweigh the costs of taking action. Policy that aims to spur action by increasing or emphasizing the benefits of taking action is often ineffective. In such cases, policymakers should focus on reducing necessary effort instead of on increasing or emphasizing importance. Simplifying works because people prefer the path of least effort, even if their choice of path has great consequences.

There are ample opportunities for simplification across many domains. For instance, countries where people are organ donor by default have higher donor rates than countries where people have to opt in to become an organ donor (Johnson & Goldstein, 2003). In 401(k) retirement plans, changing the default option has led to an increase in participants (Choi, Laibson, Madrian, & Metrick, 2002). Evidently, policymakers should carefully consider what happens to people who do nothing. If people are nevertheless

required to make a decision, then collapsing multiple choices into a single binary choice can help to reduce procrastination (Beshears, Choi, Laibson, & Madrian, 2013). Finally, every obstacle that people encounter along the way can cause inertia, even if people care about the outcome. People put away letters that are difficult to read; people leave websites that require them to provide too much personal information before being able to sign in; and people hang up on time-consuming automated phone menus. ‘Choice architects’ should therefore carefully reconsider the necessity of each of these obstacles.

Incentives. Immediate outcomes matter most in guiding behavior. Following this logic, attempts to incentivize desired behavior can be successful if time between action and incentive is short³⁵. For instance, paying people \$25 to attend the gym once a week can help to create a healthy habit (Charness & Gneezy, 2009). However, attempts to incentivize desired behavior are less successful if people receive the incentive after a long delay. This explains why the provision of tax breaks as incentive for retirement saving has little effect on behavior (Chetty, Friedman, Leth-Peterson, Nielsen, & Olsen, 2014).

If carefully tested and implemented, incentives could thus promote blood donation (Lacetera, Macis, & Slonim, 2013), healthy eating (Just & Price, 2013), regular health check attendance (Ranganathan & Lagarde, 2012), and household energy conservation (Abrahamse, Steg, Vlek, & Rothengatter, 2005). Even in the financial domain, existing distant-future incentive policy could become more effective if they were to be redesigned or reframed into more proximal incentives.

Information. In this dissertation, I argued that not all inertia is explained by a lack of importance. I also reasoned that this might be why education attempts and information provision are relatively unsuccessful in improving financial behavior. However, it should be clear that providing information

³⁵ See Gneezy, Meier, and Rey-Biel (2011) for a discussion of other factors that determine whether incentives work to change behavior.

could involve much more than just telling people how important something is. In providing information with the goal of promoting action, the previously discussed insights on simplification and incentives should be taken into account.

First, information should be about how people can take action instead of about why something is important on the long run. For instance, information aimed at promoting a healthy lifestyle could focus on how people can eat healthy on a budget, instead of on explaining why a healthy lifestyle is beneficial on the long run. Policymakers should take into account that behavior is guided both the actual effort and by the perception of effort. Attempts to simplify should be accompanied by information about how simple it can be to take action.

Second, information should be about why something is important on the short run instead of about why something is important on the long run. It should be focused on the immediate benefits of taking action or on the immediate costs of remaining passive. For instance, financial education could focus on the cost of a short-term delay in retirement saving or in paying off a debt.

The immediate benefits of taking action can also be non-material benefits, including anticipated positive feelings such as relief, pride, and enjoyment. There are indications that anticipated feelings guide behavior (Baumeister, Vohs, DeWall, & Zhang, 2007; Janis & Mann, 1977; Richard, van der Pligt, & De Vries, 1996a; Zeelenberg, 1999; Zeelenberg, Nelissen, Breugelmans, & Pieters, 2008). For instance, anticipated regret predicted the intention to save for retirement (Croy, Gerrans, & Speelman, 2015). Prompting people to anticipate how they would feel after having unsafe sex was found to increase the likelihood of condom use (Richard, van der Pligt, & De Vries, 1996b). In another study, the anticipation of pride led to greater perseverance on an aversive and effortful task (Williams & DeSteno, 2008). Future research could build on these studies to explore how anticipated feelings can be used to promote wanted behavior such as saving for

retirement. Caution is warranted, because similar strategies could be misused to promote unwanted behavior, such as lottery participation based on the anticipation of regret (Zeelenberg & Pieters, 2004).

These guidelines fit with the recent attention for the use of behavioral insights to improve information and education. For instance, Loewenstein, Sunstein, and Golman (2014) recommend the careful consideration of psychological factors – simplification, standardization, vividness, and social comparisons –to increase the effectiveness of information disclosure. Based on a meta-analysis of financial education attempts, Fernandes, Lynch Jr., and Netemeyer (2014) suggest ‘just-in-time’ financial education, which ties information to an immediate opportunity for action. Fox and Sitkin (2015), in their discussion of how behavioral science can influence public policy, emphasize the promise of behavioral information tools such as concrete feedback and simple reminders. Finally, I wholeheartedly agree with Larrick (2015), who recommends “providing better information, not more information” to help people make better decisions.

Closing Remarks

I examined the psychological dynamics of inertia in retirement saving. People often do nothing even when action is needed. Research described in five chapters showed that a lack of importance could not explain this phenomenon; emphasizing decision importance may even backfire by increasing inertia. Perceived difficulty, information about missed opportunities, and underestimation of the cost of waiting all contribute to inertia. So, this dissertation presented a psychological explanation of people’s financial behavior.

Some people may consider this dissertation *atypical* for a psychologist, in that I have studied a behavioral phenomenon only in the financial domain. I think that this is a good thing. In contrast to economists, many psychologists appear to think that financial behavior is uninteresting or complicated. I believe that this aversion is unwarranted and that

psychologists, along with other behavioral scientists, should be particularly interested in financial behavior. Because of its quantifiable and structured nature, the financial domain serves as the ideal testing ground for psychological ideas. In addition, studying financial behavior provides a direct opportunity to contribute to society, because behavioral insights can have a positive impact on people's lives.

Other people may consider this dissertation *typical* for a psychologist, in that I have taken a simple problem and complicated it by identifying various underlying psychological mechanisms. Again, I think that this is a good thing. Many people seem to believe that simple problems need simple solutions, but this is hardly ever the case. Behavioral problems are usually overdetermined; several psychological mechanisms may contribute to inertia. So, if we truly want to help people overcome seemingly simple problems like retirement saving inertia, we need to understand the underlying psychological dynamics, even if these dynamics are sometimes more complex than we would like. I hope that the ideas and research presented in this dissertation contribute to this ambition.

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